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ABSTRACT

This action research project devised a program designed to increase the use of visual elements in middle school core subjects and assessed its impact on student recall, teacher awareness, and use of visual/spatial elements. Observation, surveys, and interviews documented teachers' and students' limited knowledge and use of visual/spatial elements such as visualization, color cues, picture metaphor, idea sketching, and graphic symbols. Results of the Stroop Color Word Test administered to students documented the over-emphasis on verbal/linguistic intelligences. The intervention consisted of one 3-week unit on American Indians, which was taught in two content areas simultaneously, using learning activities that encouraged skills such as visualization, color cues, picture metaphors, idea sketching, and graphic symbols. A research group of fifth graders in one middle school who participated in the program was compared to a control group of fifth graders who had the social studies unit with no corresponding art unit. Evaluation results indicated that students in the research group performed better on a knowledge test and showed a positive impact on the Stroop Effect. Teachers indicated an increase in the use of visual/spatial elements in core subjects. Appendices include teacher surveys, photographs of student projects, examples of student writing, and sample class materials. (Contains 21 references.) (KB)

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COGNITIVE DEVELOPMENT AND THE INTEGRATION OF VISUAL / SPATIAL INTELLIGENCE INTO THE CURRICULUM

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An Action Research Project Submitted to the Graduate Faculty
of the School of Education in Partial Fulfillment
of the Requirements for the Degree of Master of Arts
in Teaching and Leadership

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Abstract

This summary describes a program for increasing awareness, development and implementation of visual elements into Core subjects. The cognitive development of the targeted students as it pertains to memory and recall may be positively effected. Student tests and surveys of teachers documented and described the extent of visual/spatial deficits.

Analysis of probable cause data reveals that schooling treats the imagination as unimportant. Schools lack the integration of visual/spatial intelligence into other Core subjects and subject area teachers have limited visual/spatial knowledge. The contribution of overlearning and over teaching of verbal/linguistic tasks. Schools are overdependent and place higher value on verbal/linguistic skills when visual spatial skills not only enhance those skills, they are skills of equal value.

As a result of this program employing visual/spatial components and assessments, the students and faculty may have an increased awareness and understanding of the importance of including visual/spatial elements in the teaching and learning of verbal/linguistic tasks.

CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General statement of Problem

Students and teachers of the targeted middle school class have a limited knowledge and use of visual/spatial elements to positively effect recall. Integrating visual/spatial intelligence across the curriculum, may have an effect on this development.

Evidence for the existence of this problem includes teacher observation, surveys, and interviews.

Immediate Problem

Coal City Middle School in the Coal City Community Unit District #1, houses 492 students in grades five through eight. Based on the 1994-95 school year figures, the average class size for each grade level is as follows; fifth-19.7, sixth- 19.7, seventh- 22.2, eighth- 22.2. There are six classes in each of the grade levels. The building is an air conditioned closed class structure consisting of a cafeteria, media center, two gymnasiums, chorus and band room, art room and two computer labs. Academic classes are held in individual class rooms. Seventh and eighth grade classrooms are located on the second floor. CCMS is not a fully included setting with three Special Education classes in the building. Full inclusion in Encore classes is currently in place.

As of September 30, 1994, the racial-ethnic make up reported for CCMS students was 97% White, 0% Black, 2.8% Hispanic, and 0.2% Asian Pacific Islander. The percentage of students eligible for bilingual education is 0%. The attendance rate at CCMS is 95.7% district wide. The student mobility rate which is based on the number of times the students enroll or leave a school during the course of a year is 8.4%. This is lower than the district rate of 9.8%. Students who were absent from school without a valid cause for ten percent or more of the last 180 school days comprise 0.6% at CCMS which is lower than the district rate of 1.4% (Coal City Community Unit District #1 School Report Card,1994).

The staff at CCMS is comprised of 38 teachers, 26 female and 12 male with seventeen teachers having their Master's degrees. The average number of years of experience is 15.1.

Students are heterogeneously assigned to a classroom. The core subject areas and the time devoted to them is as follows: mathematics-40 minutes, science-40 minutes, language arts-40 minutes, reading-40 minutes, social studies-40 minutes, and physical education- 40 minutes. The Encore subject areas are as follows; art-40 minutes for one quarter, health-40 minutes for one quarter, computers-40 minutes for one quarter for fifth and sixth grades and 40 minutes for two quarters for seventh and eighth grade, music-40 minutes for one quarter for fifth and sixth grades. Band and chorus are offered in lieu of a 40 minute study hall three periods per week for fifth and sixth grades and five periods per week for seventh and eighth grades.

Students in the sixth grade are assessed by the state through IGAP in reading, math, and writing, seventh grade is assessed in science and social studies. Students in grades fifth through eighth grade are given Stanford Achievement Tests. Assessment in the Fine Arts in sixth grade are currently devised and administered by the individual Fine Arts teachers.

All students are assessed quarterly on a district-wide progress report. Students in grades fifth through eighth receive letter grades consisting of; A (94-100), B (86-93), C (78-85), D (70-77), and F (0-69).

Art education at CCMS is currently taught to all students by one art specialist. Art education consists of a curriculum devised by the art teacher. A variety of sources are used to create the curriculum in lieu of a specific text for individual grade levels. In addition, various multi-media are also implemented such as art prints, videos, scholastic magazines, filmstrips, and three-dimensional designs.

Description of the Surrounding-Community

Coal City Community Unit District #1 is located in Grundy County, Illinois. In the district, 1596 students are enrolled, 8.1% are from low income families and 0.2 are limited English proficient . One hundred percent of the teachers are Caucasian. Male teachers comprise 31.4% and females account for 68.6% of the teaching staff. The average years of service in the district is 15.1, with an average salary of $40,942. The pupil-teacher ratio is 17.2:1. Teachers with masters degrees and beyond comprise 39.8% of the total of 95 teachers. The administrators earn an average salary of $57,321, and pupil administrator ratio is 266.0:1. (Coal City Community Unit Dist.#1 School Report Card, 1995).

CCMS is located in the community of Coal City, incorporated as a village in 1881. Coal City is a rural community 60 miles southwest of Chicago, Illinois. It consists of approximately three square miles with a population of 4110. The school district services the students in the surrounding areas within the Carbon Hill and Diamond communities.

As of 1995 the median home value in Coal City was $104,127. The median family income in 1990 was $35,728. More than 98% of the population of Coal City was Caucasian. The median age was 35.0.

Of the population of Coal City, 40.6% are high school graduates, 12.5% have college degrees. The employment rate is 93.0%. Part of the labor force consists of 12.68% having some high school credit and 8.68% having only elementary school experience (Grundy County Economical Society 1995).

Regional and National Context of the Problem

Curriculum is not so much transmitted to the students as reconstructed by them. It would seem that the learning of all students, certainly that of students who are functioning at what Piaget,1960 would call the pre-operational stage of development, would be enhanced if the notion of artistic construction was approached more literally than metaphorically. Despite rhetoric about multiple intelligences, students given the opportunity to exercise and consequently develop only a limited range of their abilities in school. It is a concern that those with a particularly strong predilection toward artistic intelligence are often unable to make a significant contribution in most classes and are in many cases consequently failing (Donmoyer, 1995).

On creating the self, Domasio suspects that convergence zones, thousands of them, spread throughout the cortex, do more than just process language. They may also coordinate every other sort of information the brain needs - perception, memory, emotion - to be fully functional. And if that is true, the convergence zones, merging disseperate pieces of information into a semblance of a whole, could be responsible for the most elusive of the brain phenomena; consciousness, the sense of being in the here and now (Lemonick,1995).

According to Lazear,1991 the human brain naturally thinks in images. Capacity to form images or to visualize is one of its most basic mental processes. Visualization is the way we think. The human brain programs and self programs through its images; when we were children our visual/spatial capacities were very acute. Schooling develops reasoning powers and implicitly, if not explicitly, treats the imagination as unimportant. As the process continues, the growing person finds it more and more difficult to form mental images, simply because this particular faculty goes unused. The imagination is inherent in the nervous system and as such it can be relearned. Art education promotes self expression, creativity, and intuitive and sensory-oriented learning. In addition, arts education fosters both discipline and cognitive and emotional development (Hanna, 1994).

Magnussen, Greenlee, Asplund and Dyrnes,1990 have recently pointed out that as most perceptual discriminations require comparisons across time and space, and it is obvious that the storage of form and spatial relationships is as essential in human memory as content and meaning (Heathcote, 1994). Therefore, visual/spatial intelligence is critical in how we view the world around us. However, its integration into the school curriculum is often limited.

CHAPTER 2

PROBLEM DOCUMENTATION

Problem Evidence

In the beginning, before words, language, abstract reasoning, cognitive patterning, and conceptual thinking; were images. The human brain naturally thinks in images. In fact, its capacity to form images or to visualize is one of its most basic mental processes. Just what are images, and how do they function in our lives? They are interior road maps that help us make sense out of life, being unconscious but controlling our conscious behavior. Comprising pictures of our self and our world, they supply an inner guidance system that tells us who we are and give us direction in deciding what to do with our lives. Images are formed and shaped by every experience we have had. These images in turn shape both our present and future experience (Lazear, 1991).

Documentation shows images are innate and necessary in learning. If this is true, why then is visual/spatial intelligence one of the most underutilized focuses of the school system?

Evidence for the existence and extent of this problem are found in teacher surveys, a targeted group consisted of fifth grade students at the targeted middle school and a control group of fifth grade students at the targeted middle school, and test materials developed by the fifth grade social studies teacher, to check recall of subject matter after a given period of time for both the research group and the control group, and the Stroop Effect which is a disruption and delay in the naming of colors of words printed in colored ink when the letters of the words spell the names of incongruous or non matching colors.

An analysis of probable cause data reveals that schooling treats the imagination as unimportant. Schools lack the integration of visual/spatial intelligence into other core subjects and subject area in which teachers have limited visual/spatial knowledge. This also contributes to an over learning and over teaching of verbal/ linguistic tasks causing a suppression of visual/spatial intelligence. Schools are too dependent and place a higher value on verbal/ linguistic skills when visual/spatial skills not only enhance those skills, but are skills of equal value.

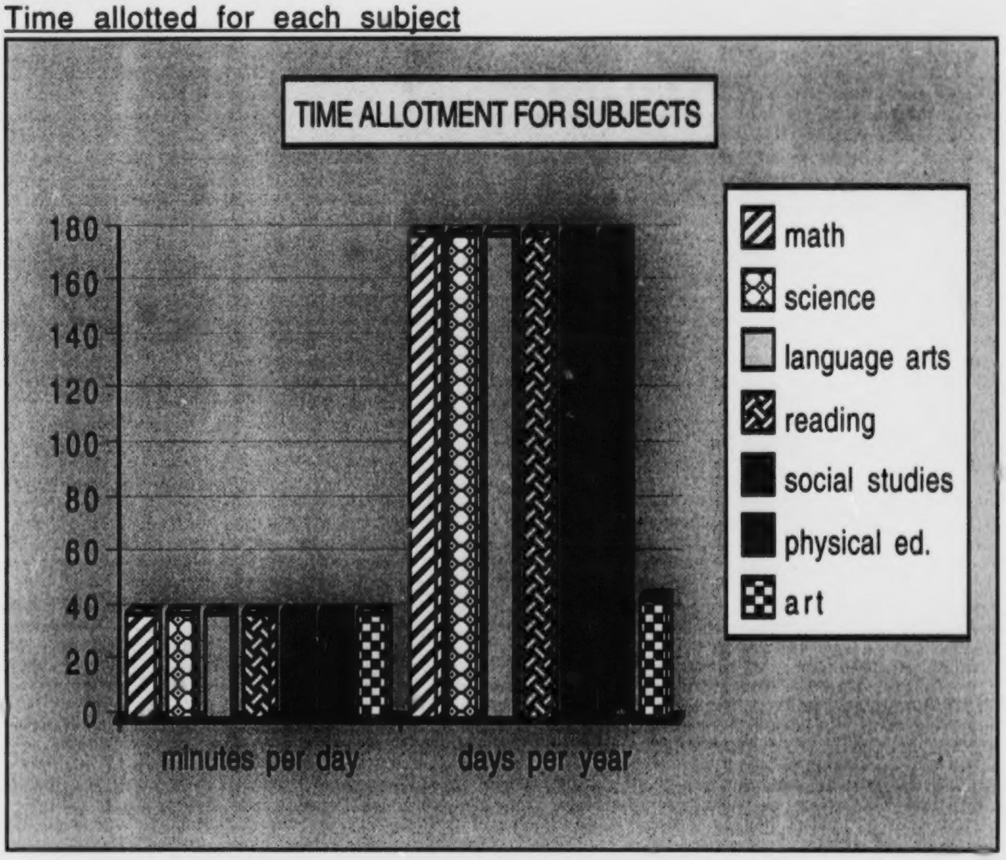
Thinking directly in terms of colors, tones, images, is a different operation technically from thinking in words. There are values and meanings that can be expressed only by immediately visible and audible qualities, and to ask what they mean in the sense of something that can be put in to words is to deny their distinctive existence (Dewey,1934).

Students who are operating at what Piaget, 1934 called the preoperational stage of development would be enhanced if the notion of artistic construction was approached more literally than metaphorically. Concern is with all other subjects as well as the teaching of the arts when schools are teaching all other subjects while students sit passively as teachers pontificate. Despite rhetoric about the constructivist nature of learning and multiple intelligences, students given the opportunity to exercise and, consequently, develop only a limited range of their artistic intelligence are often unable to make a significant contribution in most classes and are, in many cases, failing (Donmoyer,1995).

Schools allot time to subjects as they deem necessary to provide a well rounded education to the students. Time devoted to each of the multiple intelligences however is grossly out of balance where the visual/spatial intelligence is concerned. Schools as a rule provide three times as much scheduled time spent on classes that utilize intelligences other than those utilized in the visual arts. This in turn defeats the purpose of providing a well rounded education by not allowing equal time to develop all intelligences.

A graph showing the time devoted to each of the subjects is shown in Figure 1.

Figure 1
Time allotted for each subject

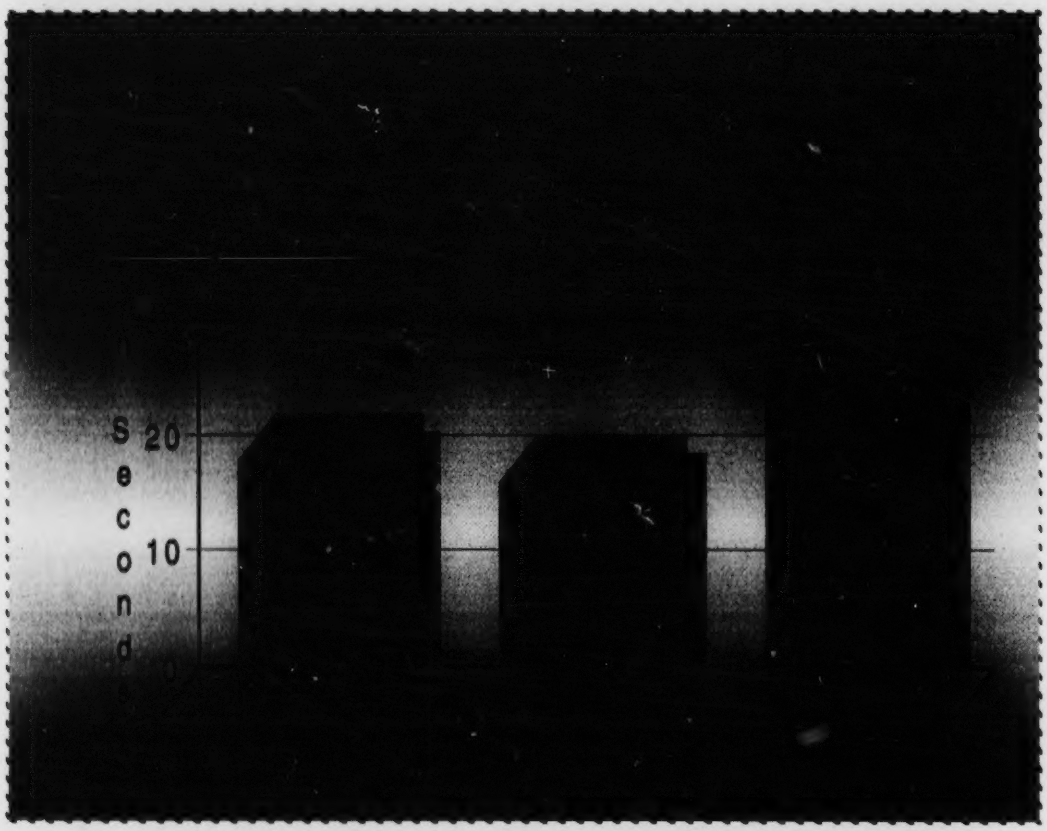


As the graph reveals, where as all subjects are taught an equal amount of time (40 minutes per day), art is offered only forty-five days per year where all other subjects are taught for one-hundred-eighty days, and in so doing, the visual arts which promotes the use of visual/spatial intelligence are offered for a significantly lesser amount of time than other subjects which can contribute to a deficiency in this area.

When the Stroop Effect (Appendix A) was administered, documentation in Figure 2 supports the statement that verbal/linguistic intelligences are over taught and and hence schools place a higher value on such.

Figure 2

Stroop Effect Results



As the graph reveals, the time for students to name colors when presented with colored words that were incongruent, was significantly higher, the time in fact was doubled for this category.

Probable causes (site based)

An analysis of the site in relation to the problem evidence suggests several probable causes. The lack of integration of visual/spatial intelligence into other core subjects is evident in the teacher survey (Appendix B) within the site. Results show that teachers do not incorporate these visual/spatial elements overall on a regular basis as revealed in Table 1. Results reflect the responses of the twenty teachers surveyed and percentages of times that the individual teachers used these particular visual cues in the planning and execution of their lessons.

Table 1
Visual Elements Implementation Survey

Frequency Chart

	Visualization	Color Cues	Picture Metaphor	Idea Sketching	Graphic Symbols
0%	3	5	7	5	6
25%	2	9	7	7	5
50%	7	6	6	2	4
75%	7	0	0	5	4
100%	1	0	0	1	1

Table 1 shows twenty-six incidence where teacher used these visual elements zero percent of the time, thirty incidence at only twenty-five percent of the time, twenty-five incidence fifty percent of the time, sixteen incidence seventy-five percent of the time, and only three incidence one-hundred percent of the time that a lesson is implemented in the classroom.

The transfer of visual/spatial intelligence to life can be obtained by discussing the intelligence, tools used, finding applications beyond the lesson to other curriculum areas, and finally integrating it into the task of living in the world outside of the classroom. The brain associates ideas and groups and links them in short-term memory; it engages the pattern-building process in long-term memory and uses primarily visual imagery. You can improve your visual/spatial capacities for knowing. As with each of the intelligences, it involves a process of first awakening the intelligence, amplifying and strengthening it, training it to work for you in the process of learning and thinking, and finally transferring it to daily life as a regularly used tool for knowing and understanding your life and your world (Lazear,1991). The theory of multiple intelligences requires the development of all kinds of intelligence, and the arts education develops areas of intelligence in addition to verbal and computational intelligence (Colwell,1995).

A lack of integration of art into other core subjects is also evident in the results of a second teacher survey (Appendix C) as seen in Table 2.

Table 2

Teacher Survey-Integration of Art into Core Subjects

	Percent of time lessons are integrated with art
0%	3
25%	11
50%	6
75%	0
100%	0

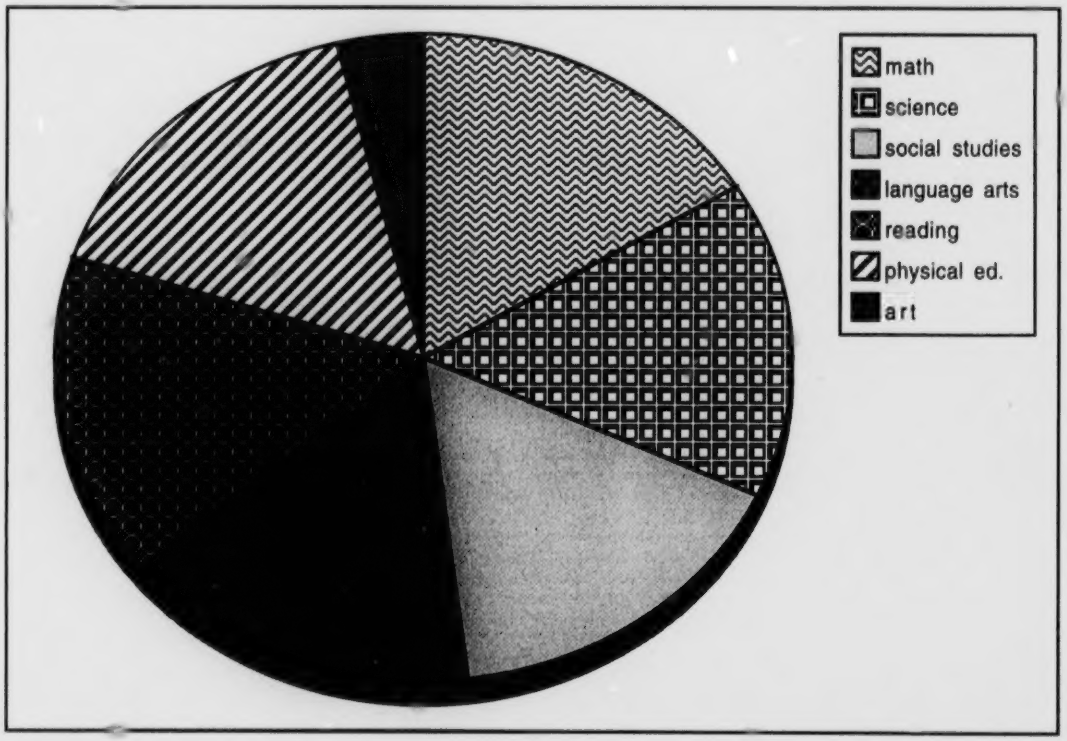
Twenty teachers participated in this survey and the results show the percentage of time that the teachers integrated art into their lessons.

An over teaching of the logical and verbal intelligences as a school system can be seen by reviewing the time allotted for each subject as compared to the arts as shown in chapter one.

Memorization over higher order thinking skills hinders visual/spatial intelligence. Figure 3 shows the time allotted for each subject area where most incorporate memorization skills as compared to the arts which incorporate visual/spatial intelligence, thus promoting higher order thinking skills..

Figure 3

Pie Chart-Subject time frame



The graph shows a balance of time for all subject areas with the exception of art, which is only allotted one fourth of the time devoted to other subjects.

Probable Causes (literature based)

The cave drawings of prehistoric man are evidence that spatial learning has long been important to human beings. Unfortunately, in today's schools the idea of presenting information to students through visual as well as auditory modes sometimes translates into simply writing on the board, a practice that is linguistic in nature. Spatial intelligence responds to pictures, either the images in ones mind or the images in the external world (Armstrong, 1994).

The image is also a way of knowing about the world that is older and more global than language and verbal symbolism (Lazear,1991).

Given this information, we could elude to the assumption that when given only auditory information, those students who learn best using visual/spatial intelligence would suffer the consequences.

Schooling develops reasoning powers and implicitly if not explicitly, treats the imagination as unimportant. Thought is naturally done employing images. In fact its capacity to form images or to visualize is one of its most basic mental processes. Visualization is the way we think. The human brain programs and self programs through its images (Lazear,1991).

The general educational curriculum, as we know it, tends to be fragmented and compartmentalized, and, until now, attempts to develop significant linkages from one subject area to another have been rare. Therefore, schooling can be seen, at some levels, more as a series of discrete learning experiences than as a synthesis of related learnings from a wide variety of academic disciplines (Dunn, 1995).

Teachers must teach for and with visual/spatial intelligence by using the tools of this intelligence and apply them to help learn the content, acquire the specific knowledge, and achieve the lesson's goals and/or objectives (Lazear, 1991).

The Stroop effect is one explanation of the difficulty in ignoring or suppressing the reading response in that reading is such an overlearned, compulsive, involuntary evoked skill that individuals can not avoid reading the words despite the task instructions (Schiffman, 1990). It is not surprising that children soon give up being imaginative. As this process continues, the growing person finds it more and more difficult to form mental images, simply because this particular faculty goes unused (Lazear, 1991).

As most perceptual discriminations require comparisons across time and space, and it is obvious that storage of form and spatial relationships is as essential in human memory as content and meaning. Which is why there is a failure to effectively teach when both are not considered (Heathcote, 1994).

A summary of probable cause for the problem gathered by the researchers' data and the literature includes the following:

1. Student scores on chapter test given to them in social studies classes show lower scores for students not concurrently studying the same subject in other classes.

2. Students timed scores on the Stroop Effect Test show the effects of an over learning of verbal/linguistic tasks as compared to visual/spatial tasks.

3. Time devoted to classes that are devoted to visual/spatial intelligence is markedly lower than time devoted to classes where other intelligences are employed.

4. Teacher surveys show a lack of integration of visual/spatial intelligence into other Core subject areas.

5. Students given only auditory information leave students who learn best in the visual/spatial intelligence at a disadvantage and they will suffer as shown in test results of such.

6. Linkages of one subject area to another have been rare and a synthesis of related learnings from many disciplines are needed.

CHAPTER 3

THE SOLUTION STRATEGY

Review of the Literature

The Stroop Effect will be given to students for the purpose of showing the effect of increased effort when visual and verbal cues do not coincide (Appendix A). Difficulty in ignoring or suppressing the reading response shows an overlearned response to reading and an inability to synthesis instructions and information through visual/spatial intelligence when presented with this conflict. This plan reflects the research in that it shows an overlearned response to reading when given instructions to interpret in visual/spatial intelligence thus showing a need to incorporate more visual/spatial intelligence into the curriculum by integrating visual/spatial elements into other Core subjects .

The arts can be taught in an interdisciplinary manner as part of the broader curriculum and can make immense contributions to the teaching of other disciplines. For example, no one can fully understand the Baroque period for example, without being familiar with the arts [of that period]... (Bresler, 1995).

This philosophy will be taken into consideration in this intervention in that a prior knowledge of American Indians in a social studies class will be incorporated into the art class and then elaborated on by adding knowledge using the visual/spatial intelligence as its method.

One solution to this problem is a team approach involving arts teachers, classroom teachers, and subject area teachers who participate together in inservice training and then implement the program during the school year. A major theoretical strategy involves the importance of teaching students how to make connections and to transfer and apply learning. Students may learn isolated facts about topics, but they are not taught how these facts are fit together in an understanding of the world, nor are they taught how to transfer information from one compartment or topic to the next. When students are faced with a variety of subject matter or phenomena in a given period of time, well-planned educational experiences are needed to help them develop relations among various elements of experiences (Roucher&Lavano-Kerr, 1995).

One way that a solution to this statement will be addressed is that the same topic will be introduced and taught in two content areas at the same time thus allowing transfer from one subject to the next to occur and a feeling of connectedness between subject areas to occur for the students.

The brain works by engaging the attention of the decision-maker through prioritizing the level of importance it attaches to ideas and groups and links them in short-term memory; it engages the pattern building process in long-term memory and uses preliminary visual imagery. The image is also a way of knowing about the world that is older and more global than language and verbal symbolism (Lazear, 1991).

Language is not the only form of symbolization that figures into learning and thought. One obvious additional form of symbolization is found in the field of mathematics. Mathematical symbols are fundamental tools of thought in scientific fields such as physics. Another less obvious, but possibly even more fundamental, form of symbolism is imagery, which is the stock and trade of the arts. The case for the importance of imagery and the arts in general in learning and thought can be made with common sense examples from everyday life, with references to the scholarly literature, and with concrete images of teachers using the arts to promote learning in their classrooms (Donmoyer, 1995). To test this idea, surveys and interviews with teachers were conducted to show an interest in using visual images in classrooms (Appendix B&C)

after increasing awareness by providing more information on such. .

When our culture reaches out suddenly beyond its old bounds and makes contacts with other cultures we become interested in new possibilities of feeling. It takes a while, but there comes a point when the beauty of an exotic art becomes apparent to us; then we have grasped the humanity of another culture, not only theoretically but imaginatively. Thus the arts can make us privy to aspects of other places and times in a way that non-literary language can only grossly approximate. In addition, because symbolism in the arts is primarily presentational rather than representational, the arts can help us overcome the sort of ethnocentric bias that is inevitably built into language (Donmoyer,1995)

Broudy,1972 regarded the development of imagination as central to the purpose of education. According to him, the schools have given their primary attention to the intellectual operations of the mind, especially those acquiring facts and of problem solving by hypothetical-deductive thinking. The raw materials for thinking of all sorts are, however, furnished by the imagination. One of the schools' goals is to develop the individual's intellectual and evaluative powers through the use of the cultural heritage conserved through critical traditions, and part of those traditions is the cultivated imagination. The aesthetic image epitomizes that cultivated imagination. Hence, he regards aesthetic education as training imaginative perception. His vision of the integration of the arts into the curriculum differs from current practice. Instead of the performance approach and the traditional course in art appreciation. Broudy advocates a more global function of aesthetic education, one ought to concentrate on helping the pupil to perceive not only works of art, but also the environment, nature, clothing, etc., in the way that artists in the respective media tend to perceive them. Eisner,1995 calls for the education of the senses and for the de-dichotomization of the cognitive and the affective. The arts provide an excellent example of the interdependence and inter relatedness of cognition and affect. Different forms of representation (e.g., visual, kinesthetic, auditory) develop our ability to interact with and comprehend the world around us and draw multiple meanings out of it. If we expand these forms beyond the verbal and the numerical, our perception of the world is enriched immensely. The Arts can be taught in an interdisciplinary manner as part of the broader curriculum and can make immense contributions to the teaching of other disciplines. The "how" of integration involves close collaboration in both of these visions between arts specialists and the teachers of academic subjects. Most writings on integration consist of success stories, mostly by teachers who report about their practice. There are also reports of research that measure the effect of integration on the learning of academic subjects (Bresler, 1995).

Imaginative perception will be tested when students are made to produce a product that contains both factual information and their interpretation of how to apply that knowledge to both an art project and a creative writing assignment (Appendix D&E).

For a piece of art to make sense to the observer as well as to the artist, students should be able to clearly express the meaning behind their creations (Ernst,1995). Sometimes teachers need to overcome the limitations imposed by their own interests, abilities, or preparation and expand the opportunities that they are offering children (La Farge,1994).

Based on the literature, the intervention selected will include testing materials that can measure the effects of; scores both with and without this intervention, integration by students of multiple intelligences, connections and transfer from one subject to the next, and an increased awareness and implementation by classroom teachers of visual/spatial elements.

Project Objectives

As a result of a program employing visual/spatial components and assessments implemented during the period of September of 1996 to January of 1997, the fifth grade students and faculty will have an increased awareness of the importance of including visual/ spatial elements in the teaching of verbal/linguistic tasks and will be measured through teacher constructed tests, published tests, and teacher surveys.

In order to accomplish the project objective and effect the desired change, the following processes are necessary:

1. Both research and control groups will study a unit on American Indians (Bacon,1993), receiving instruction and written information from their Core Social Studies teacher (Appendix F).

2. The Stroop Effect will be tested (Appendix A).

3. Research group will study a unit on American Indians, receiving instruction and visually aided materials (Appendix G) from their Art teacher (researcher).

4. Teacher survey for self awareness in teaching methods pertaining to the inclusion or exclusion of visual/spatial elements in their presentation of subject matter will be given (Appendix B).

5. A synopsis containing the importance of including visual/spatial elements in Core subjects and the effects on memory

by using such will be constructed and given to Core teachers along with the teacher survey results (Appendix H).

This action plan describes a program for increasing awareness, as well as developing and implementation of visual elements into Core subjects. The cognitive development of the targeted students as it pertains to memory and recall may be positively affected. Students' tests and surveys of teachers documented and described the extent of visual/spatial deficits.

Action Plan

Process Statement One:

Visually aided test materials will be developed. In order for the students to better understand that they can recall and retain information at a greater rate when visual aids are used, they will be tested along with students who had no added visual aids to show the greater recall of students that had both visual/spatial and verbal/linguistic cues. Scores will be recorded and shared with the students; an explanation will be given to the students as to why they scored higher on the latter.

Testing will be administered during the first quarter of the school year, occurring during the students regularly scheduled art and social studies classes.

This plan represents the research in that it will be established in the students' minds the possibilities of the use of visual/spatial elements to positively effect recall. A report of these scores will be included in a final synopsis for core teacher use.

Process Statement Two:

The Stroop Effect will be given to the students for the purpose of showing the effect of increased effort when visual and verbal cues do not coincide. In showing the difficulty in ignoring or suppressing the reading response shows an overlearned response to reading and an inability to synthesis instructions and information through visual/spatial intelligence when students are presented with this conflict.

This plan reflects on the research in that it reflects an over teaching of verbal/linguistic intelligence thus creating a suppression of the visual/spatial intelligence.

Process Statement Three:

Learning activities that encourage visual/spatial skills such as visualization, color cues, picture metaphors, idea sketching and graphic symbols will be presented to the students (Appendix I). Visual/spatial activities will also be linked directly to a current social studies unit they are studying. Students will be encouraged to employ these visual/spatial elements into the study of their current course of study.

This represents the research by showing an increase of test scores and recall by those students who employ both verbal/ linguistic and visual/spatial skills in learning of new information.

Process Statement Four:

A teacher survey will be given to the teachers of the students in the targeted fifth grade group to be filled out and returned. The survey will ask which and to what degree visual/spatial elements are currently in use in the presentation of their classes. The survey will be given during the first quarter of the school year. The survey will be scored and the results put in a final synopsis and given to the teachers to review along with student test score results of both research and control groups. The survey will be repeated during the second quarter of the school year to record any rise in the use of visual/spatial elements in the presentation of the teachers' lessons as a result of the information showing findings of this research.

Process Statement Five:

A synopsis containing the importance of including visual/spatial elements in core subjects and the effects on memory will be given during the second quarter of the school year to the teachers involved in the original survey. This synopsis will also contain all of the results of the students tests and student findings in relation to the future use of visual/spatial components and the effects on recall.

This is related to the research in that it will heighten the awareness and increase the knowledge of teachers of the positive effects on recall elicited from the implementation of visual/spatial elements into a Core subject.

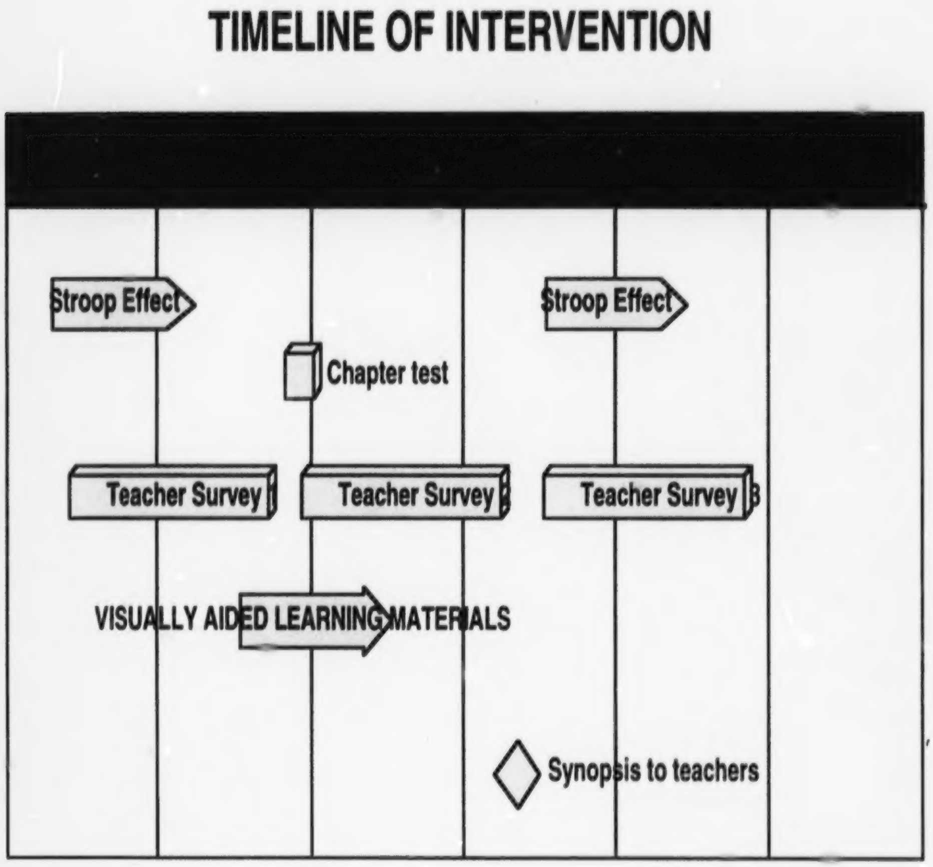
Methods of Assessment

Assessment of the targeted fifth grade students' progress in this report is focused primarily on an increase of percentage points in test results in the research group over the control group. The pretest and posttest in relation to the Stroop Effect, are being assessed on a time basis. Surveys of Core teachers are assessed numerically, through teacher observation, and personal interviews.

A time line of assessment events are illustrated in Figure 4.

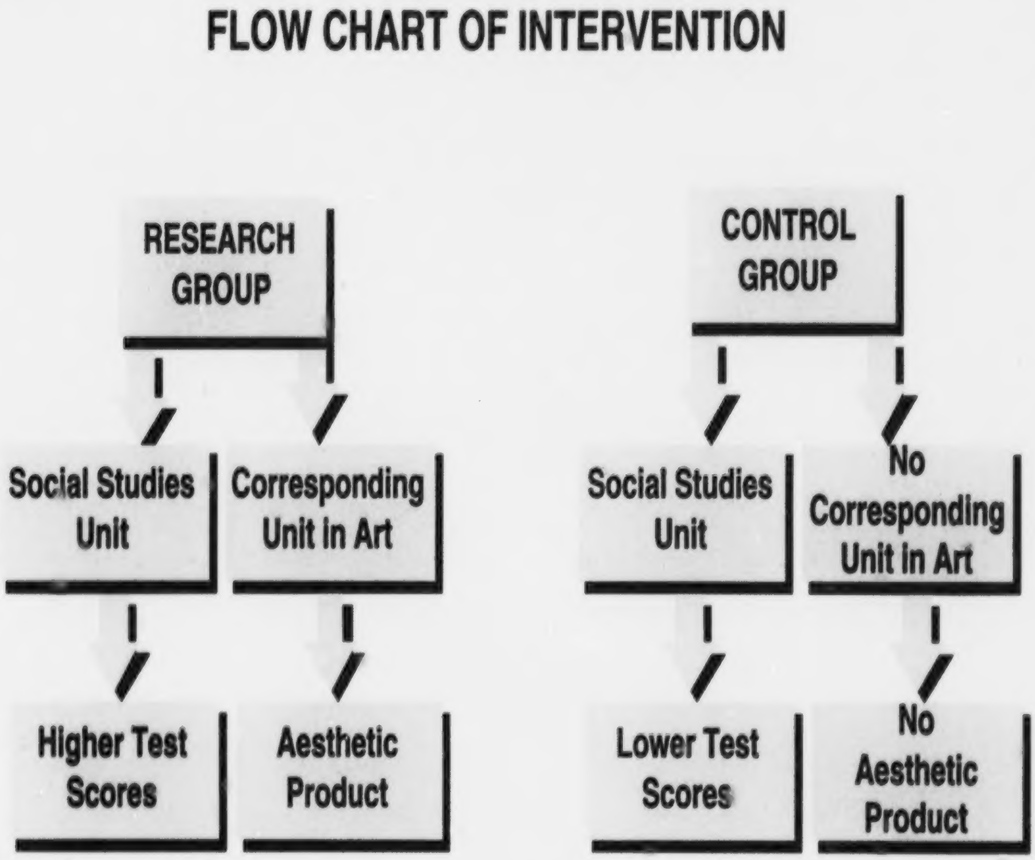
Figure 4

Timeline of Intervention



A flow chart depicting the projected course and outcome of the intervention is shown in Figure 5.

Figure 5



CHAPTER 4

PROJECT RESULTS

Historical Description of the Intervention

The objective of this project was to see if a change could be affected in test scores in a Core subject when visual/spatial intelligence was employed by simultaneously teaching a unit in an art class and a social studies class. A copy of the abstract for this project was given to the principal of the targeted school for review and approval (Appendix J).

The implementation of a unit on American Indians was approached through a visual arts perspective in an art class to a research group of fifth graders when they were studying, along with a control group, the same topic through the perspective of a social studies class.

Three weeks were spent on this unit. Instruction employed the use of visually aided materials to coincide with the area of study such as videos, art prints, symbols, mind maps, and hands on projects (Appendix K). Both research and control groups were then tested in a subject matter test (Appendix L) to compare the results of the group that had received this intervention over the group who had not. Parent permission was obtained by the means of a teacher written letter for the participation in the community field experiences (Appendix M).

Students also created their own visual aids through the use of mind maps (Appendix N) and apply visual cues on such. Students demonstrated an ability to integrate subjects when asked to write a story about their project using both facts obtained through literature and the use of their imagination to distort these facts (Appendix E).

Students participated in a reenactment of the Stroop Effect Test both before and after practicing it to show an overlearned response to the verbal/linguistic intelligence and to show an ability to improve the visual/spatial intelligence through practice (Appendix A).

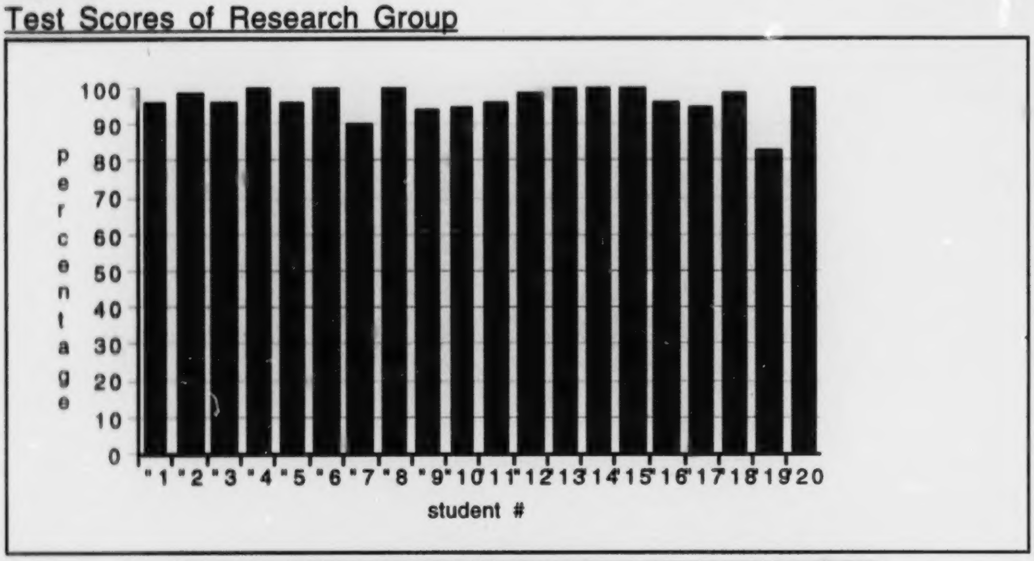
Core subject teachers also participated in this intervention through the use of surveys asking for the percentages they employed visual elements into their lessons both before a synopsis of the results of this intervention was given to them to read and after they had read it (Appendix B&C). Teacher permission was obtained by means of a teacher written letter for participation (Appendix O).

Presentation and Analysis of Results

In order to assess the effects of this intervention, the same test was given to both the research and the control groups. The data showing the results of the testing are shown in Figure 6 and 7.

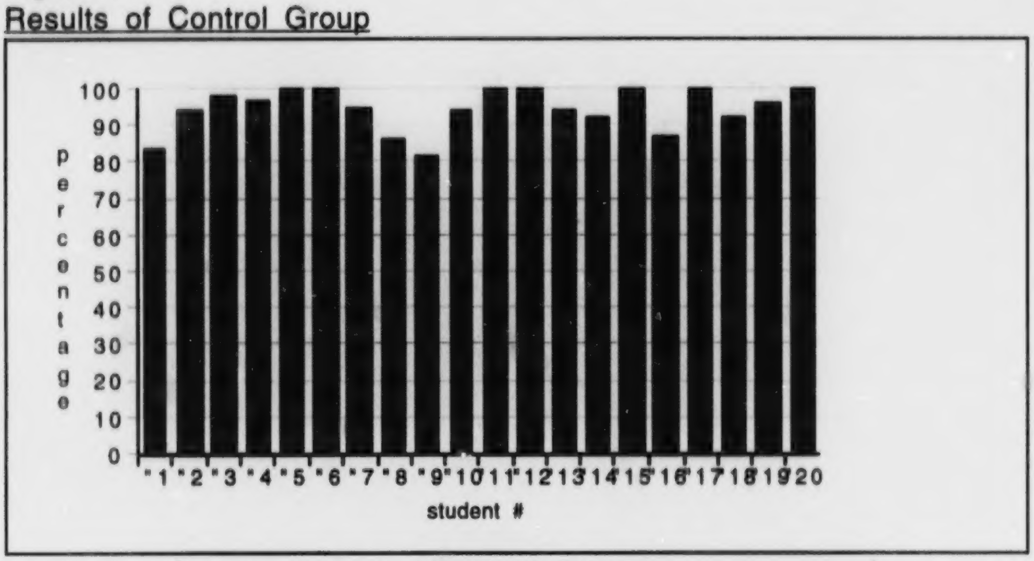
Figure 6

Test Scores of Research Group



Student Scores	
Students	**Scores/%**
Student 1	96
" 2	99
" 3	96
" 4	100
" 5	96
" 6	100
" 7	90
" 8	100
" 9	94
" 10	95
" 11	96
" 12	99
" 13	100
" 14	100
" 15	100
" 16	96
" 17	95
" 18	99
" 19	83
" 20	100

Figure 7
Results of Control Group



Student Scores

Students	Scores/%
Student 1	84
" 2	94
" 3	98
" 4	97
" 5	100
" 6	100
" 7	95
" 8	86
" 9	82
" 10	94
" 11	100
" 12	100
" 13	94
" 14	92
" 15	100
" 16	87
" 17	100
" 18	92
" 19	96
" 20	100

The intervention seems to have had a positive effect on the test results of the research group. An increase of 2.25% in the mean score and 2.88% in the median test score was shown in the research group over the control group.

To test the statement that visual/spatial intelligence can be increased, Figure 8 shows the results of the Stroop Effect before students had a chance to practice and Figure 9 showing the results of the Stroop Effect after students had practiced it.

Figure 8

Stroop Effect before practice

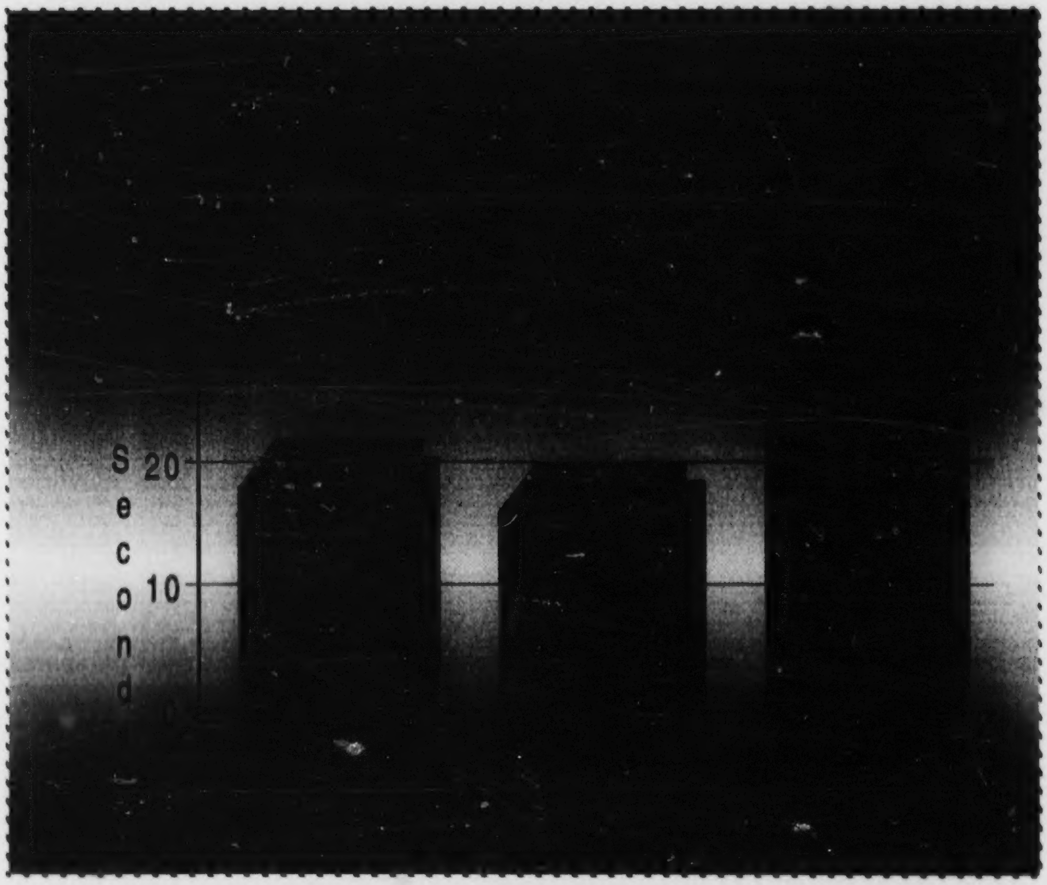
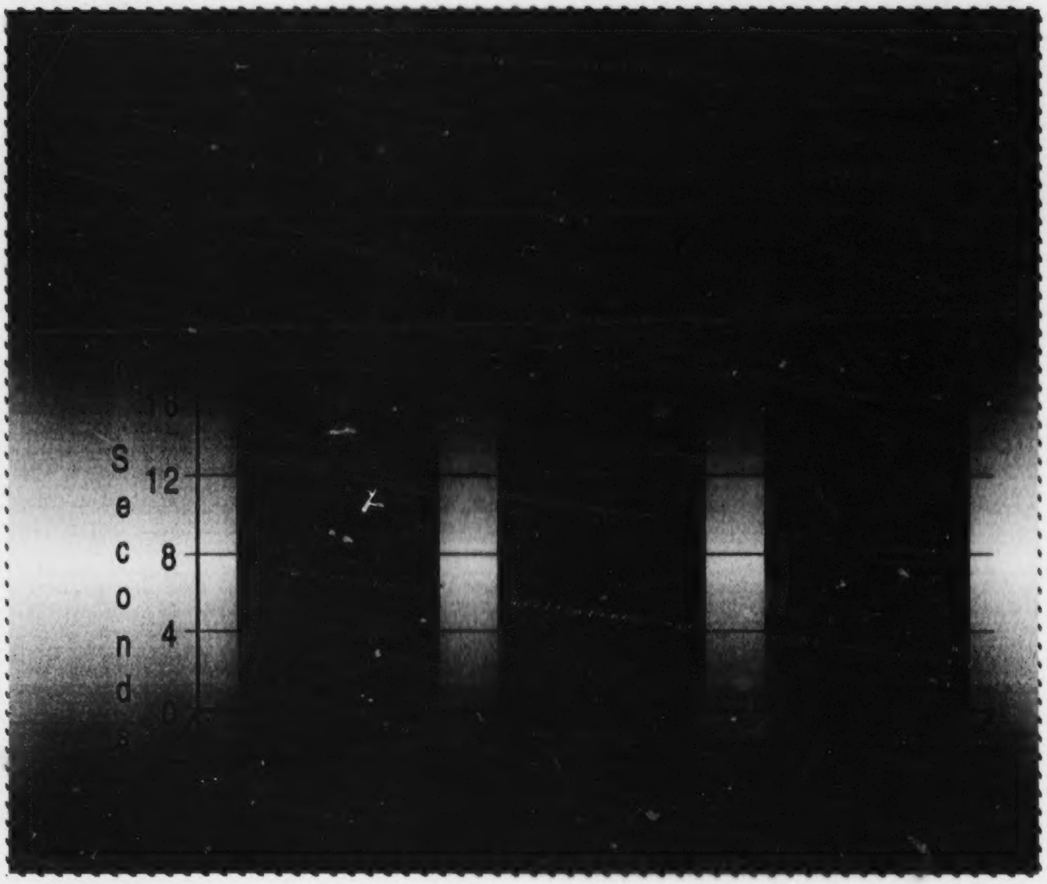


Figure 9

Stroop Effect after practice

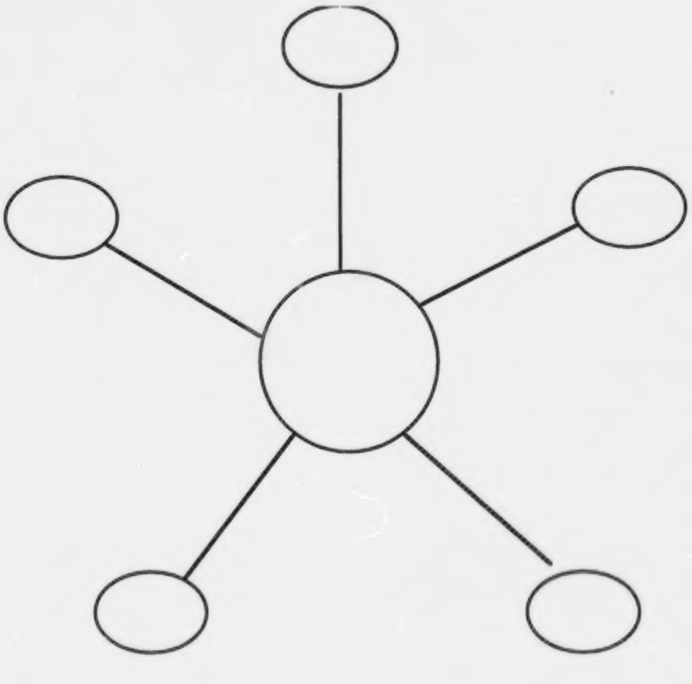


This intervention also had a positive effect in that when students were given time to practice this visual exercise, their test scores improved on the visual/spatial element of this test showing that exposure to and practice of the visual/spatial intelligence can increase a student's abilities in this intelligence.

A learning activity that was created to encourage visual/spatial skills and integrate them into academics was done through mind mapping as shown in Figure 10. Literature shows that mind mapping once used is seldom needed again. The very act of constructing a map itself is so effective in fixing ideas in memory that very often a whole map can be recalled without going back to it at all.

Figure 10

Mind Mapping Outline



This intervention appears to have been successful because the students were able to display the ability to link an academic subject with a visual/spatial element. Students also displayed excellent recall in class when verbally quizzed on the subject matter covered on the mind map.

In order to assess the results of a teacher survey for self awareness in teaching methods pertaining to the inclusion or exclusion of visual/spatial elements in their presentation of subject matter, a survey was given to them before this intervention and the same survey was given to them again after a synopsis of the importance of including visual/spatial elements into core subjects was given to them to review. This data is compared in Table 3 and Table 4.

Table 3

Teacher Survey before Synopsis

Frequency Chart

	Visualization	Color Cues	Picture Metaphor	Idea Sketching	Graphic Symbols
0%	3	5	7	5	6
25%	2	9	7	7	5
50%	7	6	6	2	4
75%	7	0	0	5	4
100%	1	0	0	1	1

Table 4

Teacher Survey after Synopsis

Frequency Chart

	Visualization	Color Cues	Picture Metaphor	Idea Sketching	Graphic Symbols
0%	0	0	0	0	0
25%	1	0	0	4	0
50%	3	5	4	3	3
75%	8	7	7	7	7
100%	8	8	9	9	10

This intervention seemed to have a positive effect on the use of visual/spatial elements into core subjects after teachers awareness was heightened through the reading of the synopsis. Table 4 shows a substantial increase over Table 3 in the amount of implemented visual/spatial elements by teachers.

Conclusions and Recommendations

Based on the presentation and analysis of the data on the integration of art into a social studies unit, the students showed a marked improvement in test scores. The results and data on the implementation of the Stroop Effect showed a marked improvement in scores when the information was studied by these students. Based on the presentation and analysis of the use of visually aided material in teacher's lessons, an increased awareness and willingness to implement visually aided materials into future lessons was shown in the surveys of teachers both before and after this intervention. The visual skills learned by students appear to have been transferred to their social studies lesson in that academic scores in such were improved.

Other areas of note are the transfer of information by the students into other core subjects. Students were also able to create a story about their art project that tied in both their art experiences and their social studies experience. With the project as the motivator for the students, it allows them to become an involved and active part of their learning instead of the passive observer of a blur of information. As a form of assessment, ideas are expressed that students have encountered which increases their perception and manipulative abilities. Combining various approaches to a given subject allows for the various learning styles of students to be addressed. Projects provide an opportunity for students to draw on their senses instead of just their left brain. It is the culmination of subjects which allows the students a greater advantage when approaching new subject matter. Assessment then becomes a process and not merely an ends. Integration of subjects and an ongoing assessment causes projects to become personalized and relevant to a students life. In the area of art for example, a vast wealth of information and project ideas can come from other Core subjects. Finding the subjects that the students are studying in a given course and drawing on them for project ideas is an approach the students are very receptive to because it allows for prior knowledge of the student to be drawn from. Hence making students more receptive to further information on the subject. It appears to be more effective to have the students be a part of their own learning experience than merely a spectator. Another area of benefit is in the area of assessment because under these circumstances, they can be as varied as there are students and students are actually passing through assessment on their own merit thus being an active participant in assessing their own work. Every part of the project becomes a process in which students build on their knowledge. The final product becomes less significant than the transgressions of the student progressing to that point. Integration is an integral part of classes in that creativity can not draw upon a blank state.

Based on the findings of this project, the researcher has several recommendations. First, using an integrated approach to subject matter provides a means for identifying and for building on content for the student and thus provides an environment that is more conductive to learning. This enables students to excel and should be an active part of a teachers' planning for future lessons. Second, students can improve in a given intelligence given exposure to such and should have this opportunity so that they may have a chance to draw upon creative abilities thus allowing them to reach their full potential. Third, teachers need to be made aware of the advantages of incorporating multiple intelligence into their lessons both by training in their college courses and continued inservice training on the job. A heightened awareness of such showed an increase in teacher willingness to both learn about and incorporate multiple intelligences into their classrooms. Finally, teachers should continue to research and to explore various combinations of intelligences and subject matter to give all students an equal opportunity to learn.

In conclusion, the researcher believes the ability of teachers to reach students and to allow them to learn skills lies with the ability of the teacher to continually search for more and better ways to allow students to become fully functional adults in an ever changing society.

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Appendices

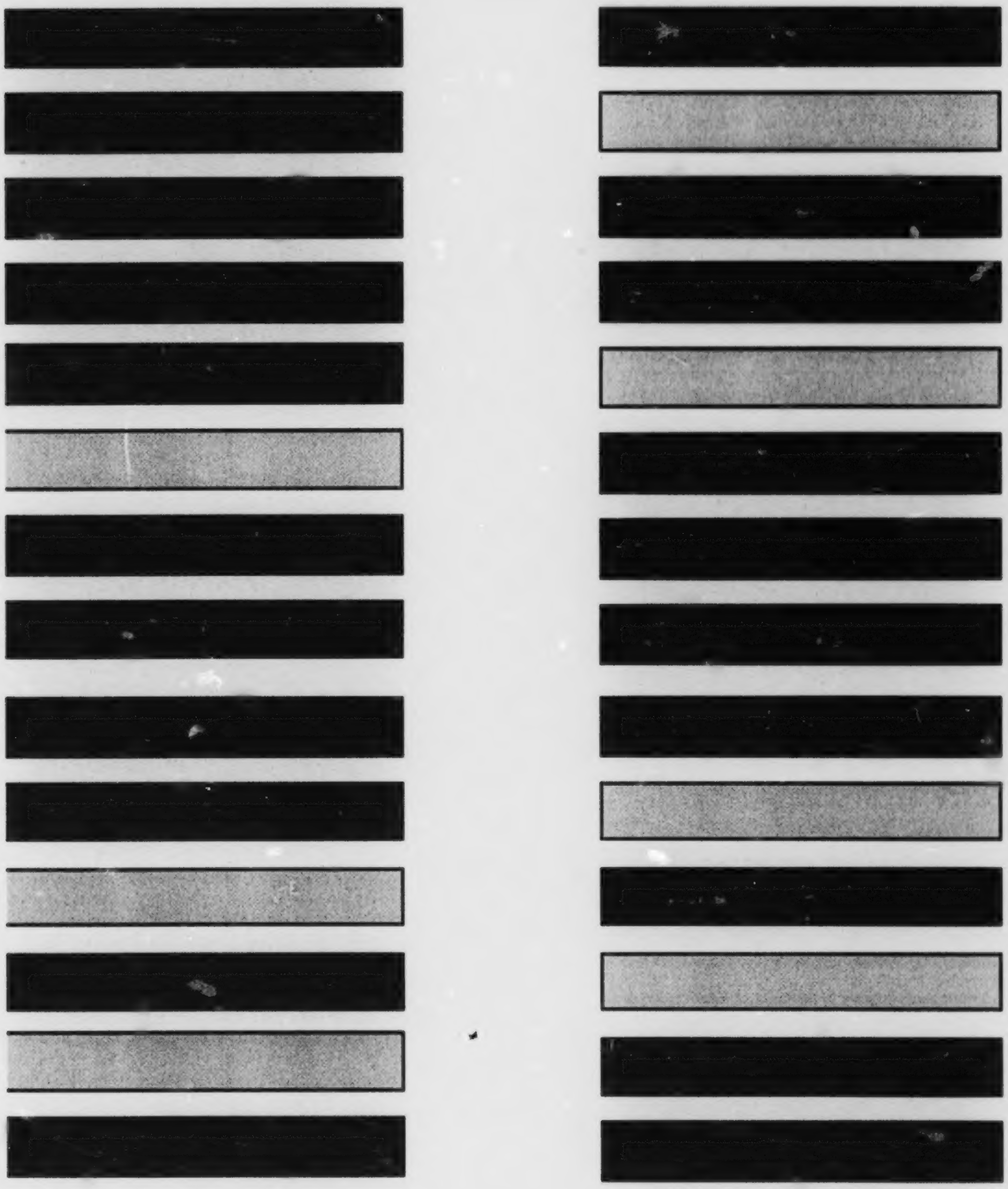
Appendix A

The Stroop Effect Test (words)

RED
BLUE
GREEN
RED
GREEN
YELLOW
BLUE
GREEN
RED
GREEN
YELLOW
BLUE
YELLOW
RED

GREEN
YELLOW
RED
BLUE
YELLOW
BLUE
RED
BLUE
GREEN
YELLOW
RED
YELLOW
GREEN
BLUE

Appendix A cont.
The Stroop Effect Test (colors)



Appendix A cont.
The Stroop Effect Test(non matching)

YELLOW
GREEN
BLUE
RED
YELLOW
RED
GREEN
BLUE
YELLOW
BLUE
GREEN
BLUE
GREEN
YELLOW

RED
GREEN
YELLOW
GREEN
BLUE
RED
YELLOW
RED
BLUE
RED
BLUE
GREEN
RED
YELLOW

Appendix B

TEACHER SURVEY FOR VISUAL SPATIAL INTELLIGENCE

Please estimate the frequency with which you use the following visual tools in your instruction:

_____ Visualization

___0%,___25%,___50%, ___75%,___100%

_____ Color Cues

___0%,___25%,___50%,___75%,___100%

_____Picture Metaphors

___0%,___25%,___50%,___75%,___100%

_____ Idea Sketching

___0%,___25%,___50%,___75%,___100%

_____ Graphic Symbols

___0%,___25%,___50%,___75%,___100%

Appendix C

TEACHER SURVEY

1. Has your educational background provided you with the knowledge to adequately incorporate the visual arts into your lessons?

______yes ______somewhat ______no

2. Has your educational background provided you with knowledge about the importance of teaching utilizing multiple intelligences?

______yes ______somewhat ______no

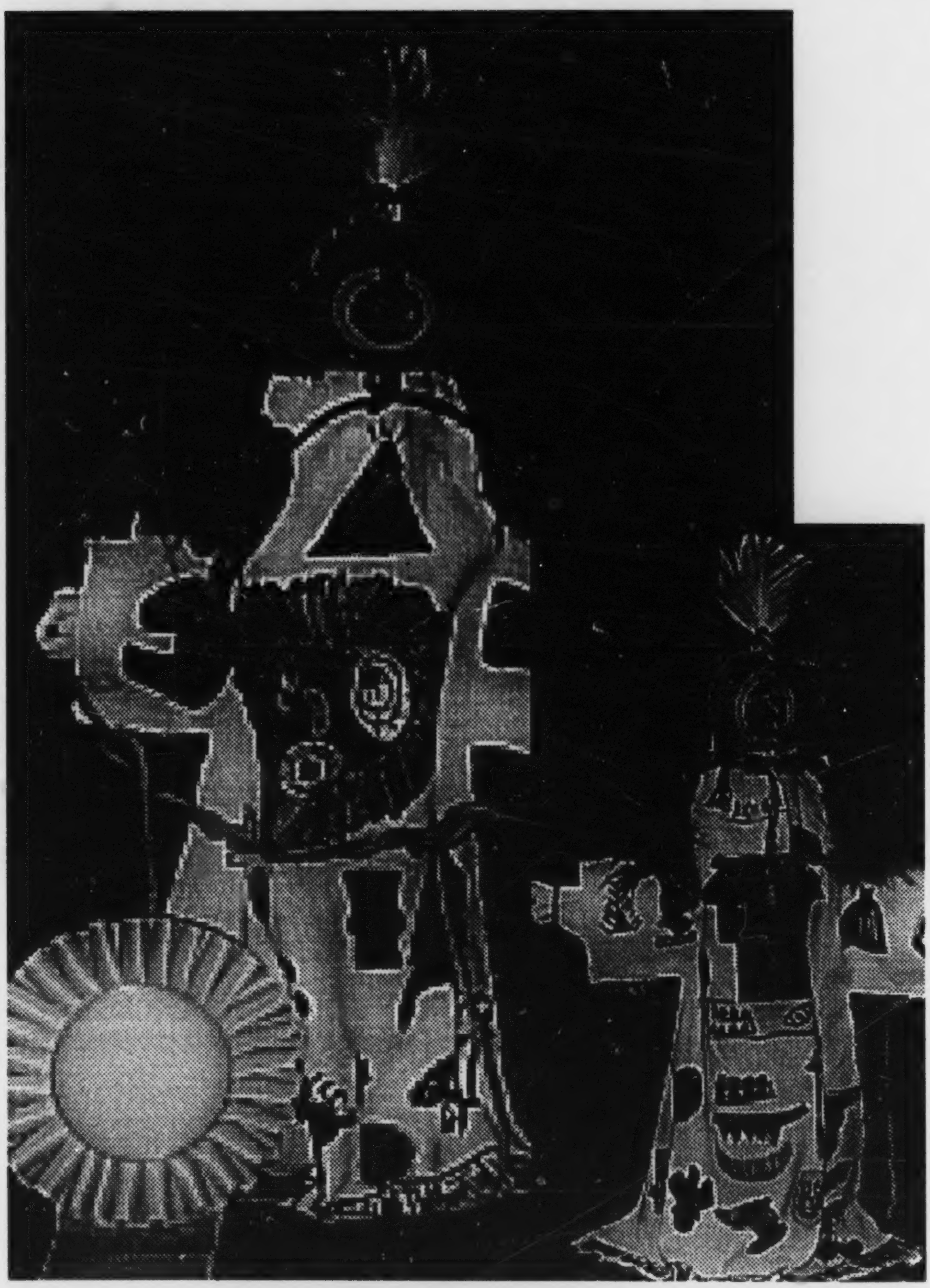
3. When teaching a new unit, do you incorporate the visual arts into your lesson plan?

______yes ______somewhat ______no

4. Please prioritize the following subjects, 1-8, as you regard their importance in a students education.

______Math	______Social Studies
______Science	______Art
______Language arts	______Physical Education
______Music	______Reading

Appendix D
Student Project



Appendix D cont.

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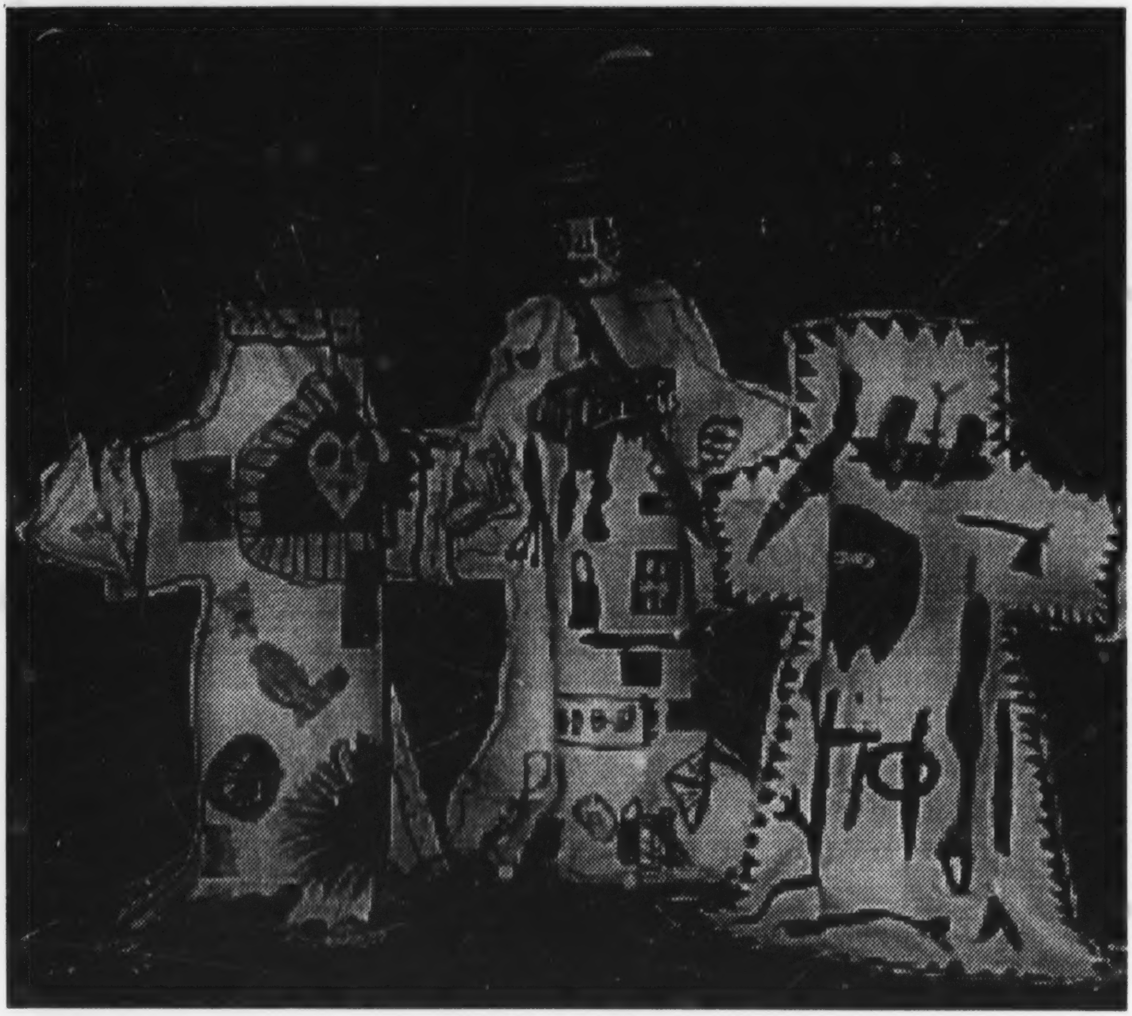
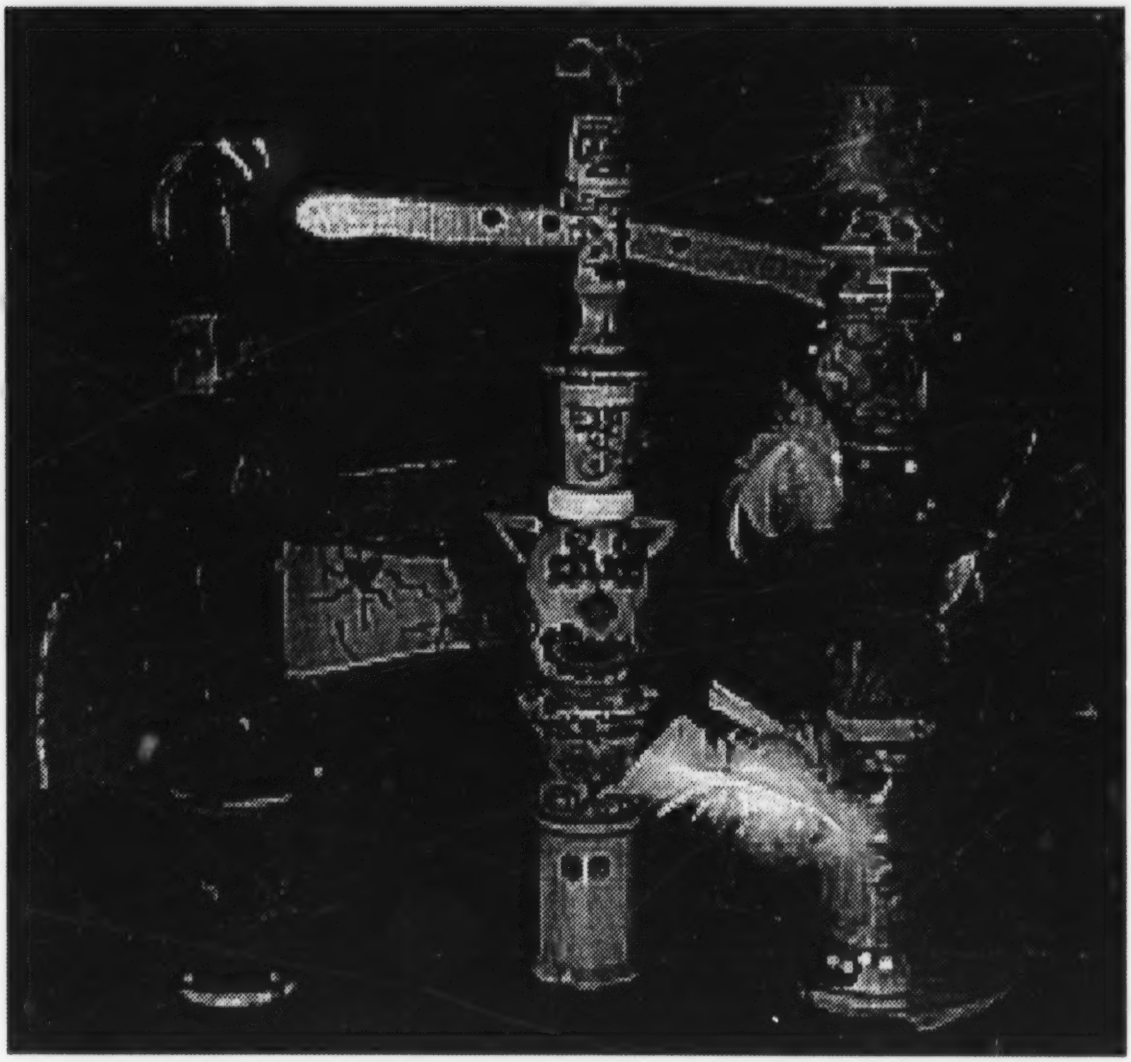


Appendix D cont.
Student Projects
Totems



Appendix D cont.

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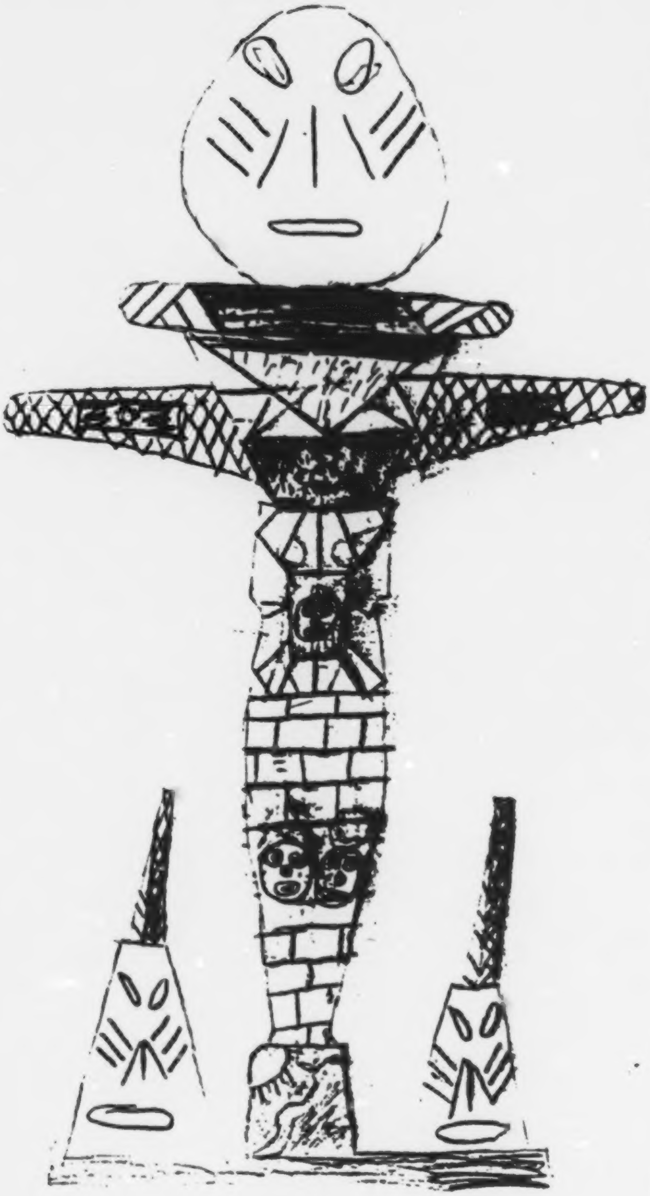
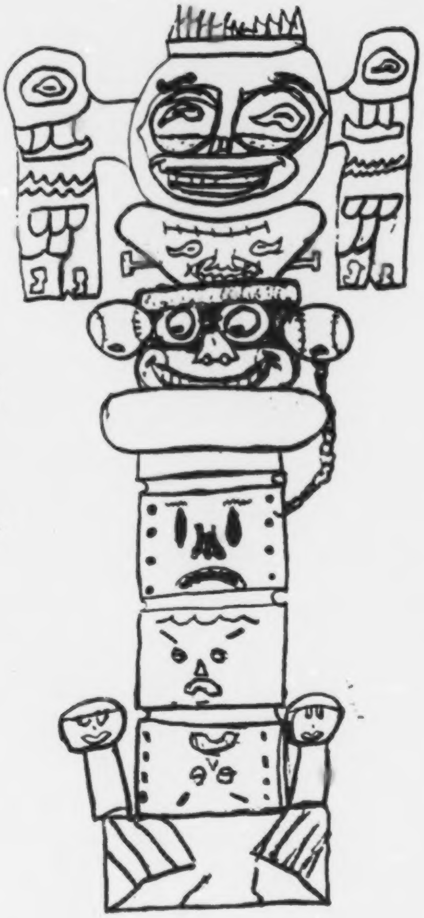
Appendix D cont.





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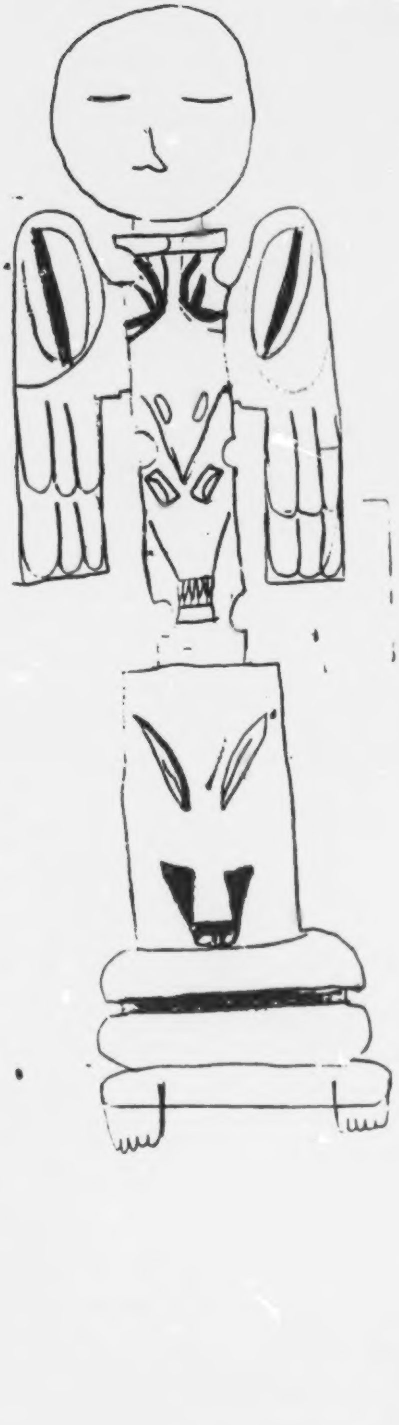
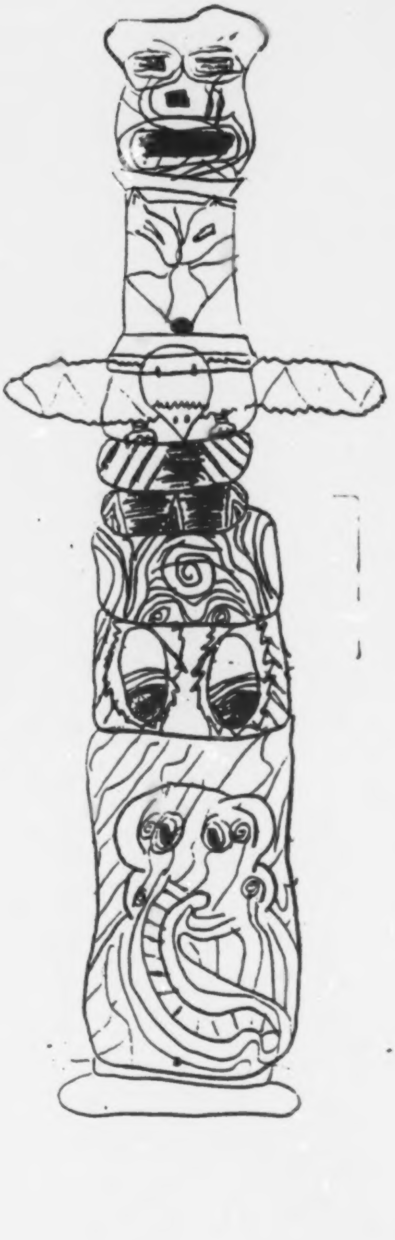




Appendix E
Student Example
Writing Assignment

Our father is the sun.He gives us heat to live.If father didn't give us heat, we wouldn't be able to live. Father sun gave us life with everything we needed.

Our mother is the sky. She gives us stories to tell our children. Mother sky is the eyes who looks after the children. Mother sky is the memory who sees the past and past beyond.

Our brother is the whale.He gives us food to eat.Brother whale is the person who pertects our childern.The person who also pertects us and keeps us safe.

THE END

Father Sun tall and big.
He makes the heat for us to live.

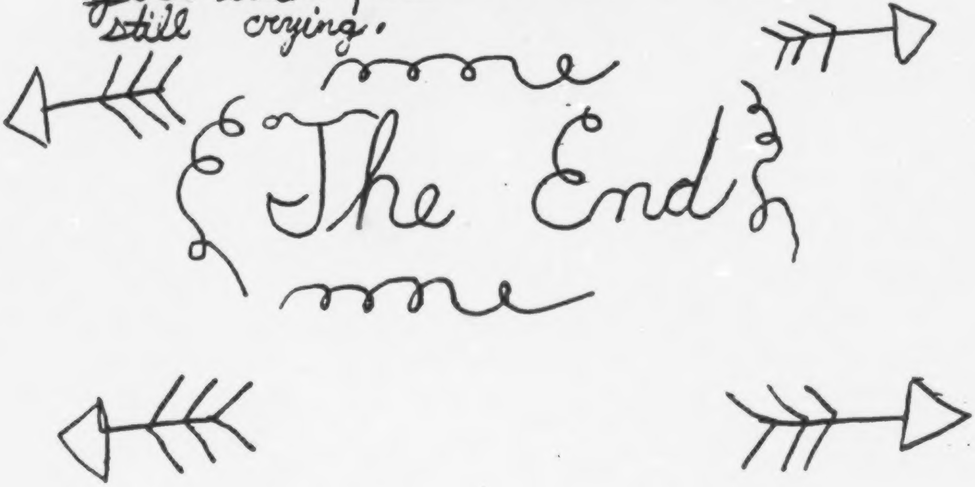
Mother Sky smart and bright.
She makes everything all right.

Brother Whale fast and tough.
He takes care of all of us.

The Crying bird

Once a long, long time ago there lived a Northwest family was making their family totem pole with their closest totem spirits on it. their totem spirits were a bird, a frog, a bull, a fish, a lizard, a animal that you can't explain, and a pole with tounges and eyes quity. As they finished they planed for a potlatch because the dad was the chief. The shaman of their tribe comes to the potlatch and the cheif gave their totem pole to him. When the the shaman got home the bird started to cry and cry and cry some more. But the shaman ignored the crying bird and went along with what he was doing. When the rest of the family found out they told him to get it back from the shaman. But when he asked the shaman for it back the shaman said no. The cheif got really really mad so a war got started with the cheif and the shaman. The war between the shaman and the cheif lasted

for twenty years finally it
was over ind the cheif
didn't make it through the
twenty year war. But findlly
the cheifs family got their totem
pole back, but the bird was
still crying.



The End

Appendix E cont.

Once a long time ago there lived a village on the Northwest Coast. The name of the people were the Kachinas. A man named Korok and a few other men were getting ready to go on a 3 month hunting trip. They packed all their things to go [illegible] off in the woods. A month and a half passed. But one day the men came out of the woods. The [illegible] said "Why are you back so soon". "Korok was bit by a horrible snake. He needs help fast". They had a great big ceremany to ask the spirits to come help this sick man. But the spirts didn't help any. So some men went out to find special ingredints to make a medicine to help heal the bite. They found the ingredients and hurried back. But by the time they mixed it up he had [illegible] away. Everyone was very very sad. So they made a totem pole of his courage and life. They put the totem pole next to his burial place. And went on with their sad lives.

FAMILY TRIBE

THIS STORY IS ABOUT MY DAD,MOM,DOG,GRANDMA,GREATGRANDMA,MY BROTHER,AND ME.ONE DAY MY DAD WENT FISHING AND CAUGHT A TEN FOOT FISH.THEN BROUGHT THE FISH HOME.BUT WHAT HE DIDN'T KNOW WAS THAT THE FISH WAS POISONOUS.HE COOKED IT.HE ATE THE FIRST BITE AND STARTED COUGHING AND STARTED GETTING PURPLE AND LOOKED PALE.LUCKILY WE HAVE A SHOMEN MY GREAT GRANDMA.SHE DID SOME KIND OF DANCE AROUND MY DAD AND SOME KIND OF PRAYER.AND THEN SOMETHING AMAZING HAPPENED.MY DAD WOKE UP AND SAID "I FEEL BETTER THAN EVER AND I DON'T FEEL SICK ANYMORE".THANKS TO GREAT GRANDMA DAD DIDN'T DIE.WEARE ALL THANKFUL.

MY MOM WAS A GREAT TRIBAL WOMAN. ONE DAY SHE WAS SCRAPING BUFFALO SKIN WHILE DAD WAS HUNTING FOR BUFFALO. OUT OF NO WHERE SHE SAW DAD RUNNING FROM A HUGE CLOUD OF DUST. NEXT THING SHE KNEW SHE WAS BEING ATTACKED BY THE HERD. AS MOM LAY THERE HALF DEAD, THE SHOMON PICKED HER UP AND BROUGHT HER TO THE LONG HOUSE WHERE SHE DANCED AROUND MOM AND SAID PRAYERS TO HEAL MOTHER. SUDDENLY SHE WOKE UP AND GAVE MANY THANKS TO THE SHOMOM GREAT GRANDMA.

DUSTIN KNOWN AS EAGLE TOE WAS SITTING IN HIS LITTLE GRASS HUT NEAR THE STREAM CARVING A NEW PEACE PIPE. ALL OF A SUDDEN HE HEARD AN ENORMOUS SPLASH, HE SUDDENLY SPRUNG TO HIS FEET AND RAN OUT TO THE STREAM AND THERE HE FOUND A GIANT BEAVER THAT WAS STARING STRAIGHT AT HIM. HE RAN TO HIS HUT TO GRAB HIS SPEAR BECAUSE HE KNEW THE VILLAGE NEEDED FOOD DESPERATLY.HE THREW HIS SPEAR WITH ALL HIS MIGHT AND MISSED SO HE JUMPED ON THE BEAVER AND WRESTLED IT UNDER THE WATER UNTIL IT WAS DEAD. IT TOOK THREE TRIBESMAN TO DRAG IT OUT OF THE STREAM AS THEY ALL CHEERED FOR EAGLE TOE FOR GETTING FOOD THAT WOULD LAST THEM FOR THREE WEEKS.

JENNIFER THE SMALLEST ONE IN THE TRIBE, WAS ALLWAYS HELPING PICK UP BUFFALO CHIPS AND HELPING MOTHER WITH OTHER JOBS. ONE DAY JENNIFER, OTHERWISE KNOWN AS LITTLE BEAR, TOOK OFF WALKING FROM THE VILLAGE. WHILE WONDERING FROM THE VILLAGE SHE CAME UPON A LARGE PIT OF SNAKES. SHE LOST HER FOOTING AND FELL INTO THE PIT. LUCKILY A TRIBESMAN WHO HAD BEEN OUT LOOKING FOR HER CAME UPON THE PIT. AS HE LOOKED DOWN IN THE PIT HE COULD SEE NO MOVEMENT FROM LITTLE BEAR, ONLY THE SNAKES SLITHERING OVER HER BODY. HE TOOK HIS GRASS ROPE AND FIT IT AROUND HER BODY AND PULLED LITTLE BEAR OUT. HE RAN HER TO THE VILLAGE WHERE THE SHOMON WAS CALLED UPON. THE SHOMON PERFORMED A DIPPING CEREMONY TO TAKE THE EVIL SPIRITS THAT THE SNAKES HAD PUT INTO LITTLE BEARS BODY. ALL THROUGH THE NIGHT THE CEREMONY WENT ON, AT DAYBREAK LITTLE BEAR FINALLY CAME TO AND THE VILLAGE PEOPLE ALL CHEERED. LITTLE BEAR NEVER LEFT THE VILLAGE ALONE AFTER THAT!

SHOMON, THE WISEST AND MOST MAGICAL PERSON IN THE VILLAGE WAS OFF MEDITATING ONE AFTERNOON. AS SHE SAT IN HER SACRED PLACE, A LARGE THUMPING SOUND CAME FROM BEHIND HER. WHEN SHOMON TURNED AROUND A HAIRY MAMMOTH WAS LOOKING STRAIGHT INTO HER EYES. THE SHOMON COULD NOT THINK OF ANYTHING TO DO BUT SCREAM AS LOUD

Appendix E cont.

AS SHE COULD. WITH SUCH A LOUD SCREAM CAME MOOKIE TO HER RESCUE. HE LEAPED UP ON THE MAMOUTH WITH ALL HIS MIGHT. HE BIT SO HARD AT THE MAMMOTHS NECK IT SENT THE MAMMOTH FLINGING MOOKIE INTO THE AIR. ONCE AGAIN MOOKIE GOT UP AND BIT AT THE MAMMOTHS GIGANTIC FEET.TERRIBLE SCREAMS COULD BE HEARD EVEN FROM THE VILLAGE. MOOKIE NEVER STOPPED FIGHTING AGAINST THE MAMMOTH UNTILL HE KNEW THAT THE SHOMON WAS SAFE ON HER WAY BACK TO THE VILLAGE. WITH MOOKIE'S LAST BITE TO THE MAMMOTHS JUGULAR, IT SENT THE GIANT BEAST TO THE GROUND. MOOKIE WENT BACK TO THE VILLAGE WHERE ALL THE TRIBES PEOPLE WERE WAITING TO HOLD A SPIRITUAL DANCE. THANKING MOOKIE FOR HIS BRAVENESS IN SAVING THE SHOMON.

GRANDMA WAS THE OWNER OF OUR LONGHOUSE AND THE TOOLS THAT WERE IN OUR LONGHOUSE. HER JOB WAS TO SCRAPE AND STRETCH THE BUFFALO SKIN WITH THE OTHER TRIBE WOMEN AND COOK ALL THE MEALS. EVERYNIGHT AS WE SAT AROUND THE FIRE GRANDMA WOULD TELL INTERESTING,SCARY,AND ADVENTUROUS STORIES.SHE ALSO TOUGHT US EVERY THING WE KNOW, AND STILL TEACHES US. THATS WHY WE ALL LOVE HER.

OUR WHOLE TRIBE IS VERY PROUD OF ALL THAT WE HAVE DONE AND OF ALL OUR BRAVENESS. THE TRIBE IS ALSO VERY HAPPY WITH MOOKIE AND THE SHOMON (great grandma) FOR ALL THAT THEY HAVE DONE AND THEIR GOOD SPIRITS WITHIN THEM!

THE END

Appendix E cont.

MY STORY ABOUT MY TOTEM POLE

MY TOTEM POLE REPRESENTS MY FAMILY:

FIRST, THERE IS A VULTURE THAT REPRESENTS MY BROTHER BECAUSE HE WILL KILL YOU BY ANNOYING YOU TO DEATH. HE DRIVES PEOPLE CRAZY!!!!! ALSO, HE BITES YOUR HEAD OFF IF YOU SAY ONE WORD TO HIM.

SECOND, THERE IS A RABBIT. WHICH REPRESENTS MY MOM. SHE'S SOFT, CUDDLY, AND GENTLE. MY MOM LOVES RABBITS AND SHE LOVES TO HOLD THEM. SHE ESPECIALLY LIKES BABY RABBITS.

THIRD, THERE IS A DOG. WHICH REPRESENTS MY SISTER. SHE LOVES DOGS. SHE ESPECIALLY LOVES DALMATIANS.

FOURTH, THERE IS A WOODPECKER, WHICH REPRESENTS ME. I LOVE BIRDS. ESPECIALLY WOODPECKERS. IF I SEE A WOODPECKER I TAKE AT LEAST A DOZEN PICTURES OF IT. I HAVE WOODPECKER POSTERS ALL OVER MY ROOM.

FIFTH, THERE IS A SILLY SMILEY FACE THAT REPRESENTS MY DAD. BECAUSE, HE'S ALWAYS GOOFING OFF. LIKE FOR INSTANCE, HE TOOK MY COUSIN AND TURNED HIM UPSIDE DOWN AND SHOOK HIM.

OK. NOW THAT YOU KNOW WHO IS WHO. I CAN BEGIN WITH MY STORY. I COME FROM A CHEROKEE TRIBE. ONE DAY WE WERE WATCHING T.V. AND WE SAW A COMMERCIAL ABOUT A T.V. SHOW CALLED "INDIAN TRIBES AROUND THE NATION." THEY WANTED A CHEROKEE FAMILY TO COME AND TALK ABOUT WHAT SOME OF THEIR CUSTOMS WAS. THEY SAID WHOEVER CALLED FIRST GOT TO BE ON THE SHOW. THEY GAVE US THIS PHONE NUMBER TO CALL1-800-23-TRIBE, SO WE DECIDED TO CALL. WE CALLED AND GOT THROUGH. THEY SAID WE GOT TO BE ON THE SHOW. THEY GAVE US THIS DATE AND TIME TO BE THERE 10/9/96 AT 9:00 A.M. THEY GAVE US THE ADDRESS THIS IS WHAT IT WAS: 6090 SOUTH PRAIRIE DRIVE, MORRIS IL. 60450. TODAY IS: 10/7/96 AND IT'S 6:02 P.M.

10/8/96

WE GOT UP TODAY AND EVERYBODY WAS TALKING ABOUT WHAT THEY

Appendix E cont.

WERE GOING TO WEAR AND HOW THEY WERE GOING TO DO THEIR HAIR. THE DAY WENT ON AND EVERYBODY SET THEIR ALARM CLOCK FOR 6:00 A.M.

10/9/96

TODAY IS THE BIG DAY!!! EVERYBODY IS RUSHING AROUND TRYING TO GET READY TO GO !!!! IT'S 8:00 A.M. AND NOBODY IS READY YET!!! WE'RE ALL RUSHING EVEN FASTER. IT'S 8:40 A.M. WE HAVE 20 MINUTES TO GET THERE!! WE'RE FINALLY READY. WE ALL PILE INTO THE CAR. SMILEY STARTS THE CAR AND OFF TO THE SHOW. WE'RE SPEEDING DOWN THE HIGHWAY AND IT'S ALMOST 9:00 A.M. RABBITS GETTING NERVOUS. WE FINALLY GET THERE. WE RUN INSIDE AND JUST MAKE IT IN TIME. THE SHOW STARTS. RABBIT SAYS A FEW THINGS. SMILEY STARTS IN, THEN DOG, THEN ME, WOODPECKER, AND THEN VULTURE. THEN EVERYBODY TALKS A LITTLE BIT MORE. THEN THE HOST, KYLE PETTY, STARTS TO TAKE QUESTIONS. WE TOOK A COUPLE OF QUESTIONS AND THEN THE SHOW WAS OVER. EVERYBODY CALMED DOWN AFTER THE SHOW WAS OVER. WE GOT 100 FREE TICKETS TO THE SHOW, FOR DOING THE SHOW. FINALLY AFTER WE TALKED MORE WITH KYLE WE LEFT. THE DAY WAS ALMOST OVER. AFTERWARDS, WE WENT AND CELEBRATED. THEN WE WENT HOME AND WENT TO BED. WE HAD A LONG DAY!!

THE

END

Appendix E cont.

My totempole represents a Hawk. The bottom of my totempole represents my dad, because it is the base of our family.

The next section represents my mom it unites the base with the upper part of the totempole, which represents the kids in our family.

Above my mom is the totem that represents me, it looks like a cloud with happiness in it.

The next section represents my guinea pig because it is furry.

The next part represents the Hawks wings.

The next part has three lines that represents my three dogs.

My next part is a Hawk that represents my bother, because he likes the Black Hawks.

The last part represents my house, because everything is underneath it and the feather are the chimney.

A long time ago Indians use to live in tepees and they were the only ones who made totempoles. But now many people can make totempole, with wood, and Indians no longer use tepees.

By: Tiffany Watson

Appendix F
Social Studies Class Materials

Map of the Past (II)

Name ______________________________

Below are some facts about different Native American groups. Use the map and compass rose to figure out which group belongs in each blank.

1. The ______________ lived in central Canada. They made sleds and snowshoes to travel in winter.
2. The ______________ lived in the northern part of the Plains area. They were famous for their bravery and fighting ability.
3. The ______________ lived on the shores of Lake Superior. They made dishes and baskets from tree bark.
4. The ______________ lived in eastern Canada. They were experts in building and handling canoes.
5. The ______________ lived on the southeast tip of North America, in Florida. They helped slaves who escaped in the years before the U.S. Civil War.
6. The ______________ lived near the Great Salt Lake. They went on long trips to collect different types of plants in season.
7. The ______________ lived in the middle of the Eastern Woodlands area. Many of them had large farms and plantations.
8. The ______________ lived along the northwest coast of North America. They carved tall totem poles with symbols showing their family history.
9. The ______________ lived in the central Plains area. They considered corn to be a holy gift.
10. The ______________ lived in the Southwest area, in the northern part near the California-Intermountain border. They raised sheep.
11. The ______________ lived in the Eastern Woodlands area, in the southeast part near the Plains border. They worshipped the sun.
12. The ______________ lived in the Southwest area, in the central eastern part. They made clothing from animal hides and lived in huts and tipis.

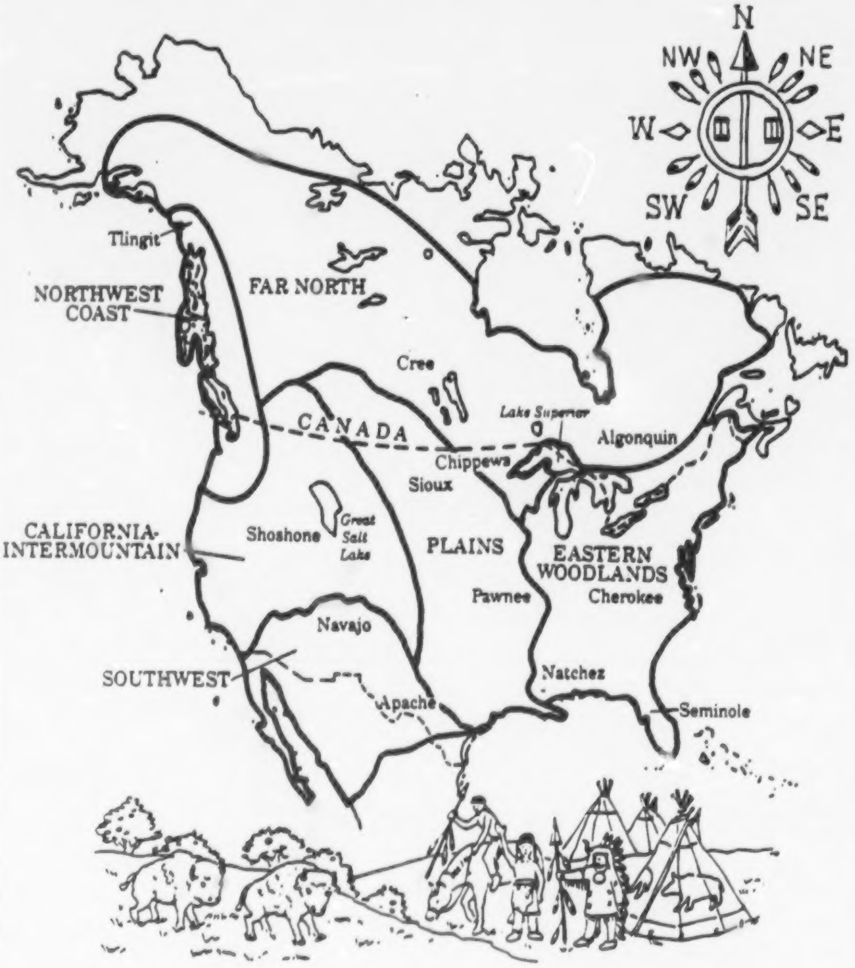
Appendix F cont.

Map of the Past (I)

Name

Long before Europeans came to North America, there were more than 200 Native American tribes living here. Today there are still many American Indians, but they no longer all live in their original home areas.

On the map below, you can see where some Native Americans lived.



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Name ____________________

The Kiva

As you read this story, circle the correct word in each numbered box at the bottom of the page.

A kiva is like a Desert Indian church building. The kiva was either round or rectangular in 1.________ . Huge kivas were used by everyone in the village. Smaller kivas were used by families. Some kivas were built above the 2.________ and had roofs made of mud and logs. Other kivas were large underground rooms.

According to Indian tradition, young boys were 3.________ to the kiva by their fathers and grandfathers. They were taught the songs, dances, and ceremonies of their people. Rain was very 4.________ for the survival of the Desert Indians and was part of many events. Often kachina dancers performed ceremonies inside the 5.________ to keep rain falling and their crops growing.

One ceremony, called "Powama" was 6.________ at the end of winter in February. The men planted sprout trays 7.________ bean and corn seeds. The seeds were kept moist and warm by the 8.________ that burned all night inside the kiva. When the new seedlings sprouted, they were taken outside for all of the village people to 9.________ . If the seedlings were healthy, it meant that the summer crops of beans and corn would be good.

The men spent a lot of time in the kiva. It was like a clubhouse for them. They used the kiva as a workshop, for ceremonies, and meetings. Women were 10.________ allowed to go into the kivas except on special occasions.

1. size circle shape	2. ground houses mountains	3. hidden left brought	4. unusual important useless	5. kivas pueblos hogans
6. played performed taught	7. with of because	8. walls dancers fires	9. see catch sprout	10. maybe sometimes not

Name ________________

Kachinas

As you read this story, circle the correct word in each numbered box at the bottom of the page.

The Desert Indians of the Southwest believed in friendly spirits called kachinas. Kachina spirits 1________ in the mountains. They were not gods. They were kind and loving spirits that were go-betweens for the people and nature. The kachinas helped the people 2________ to live a good life and to respect the beauty and power of nature.

Kachina dolls and dancers were symbols of the kachina spirits. There were over 250 different 3________ of kachinas. Some were animals, birds, plants, or weather symbols. Desert Indian people 4________ that the kachinas looked after the weather and the harvest.

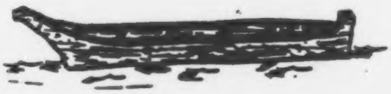
Kachina dolls were carved from cottonwood roots by the men of the tribe. They were painted and 5________ with bits of shells, feathers and turquoise stones. Kachina dolls were given as 6________ to children to teach them about the power, love and spirits of the kachinas.

Each year kachina dancers performed rain ceremonies to 7________ the spirits that rain was needed for their crops. Kachina dancers were men who were trained to 8________ costumes and masks of the kachinas. A man did not become a kachina spirit, but the spirit was with him during the ceremonies. At the 9________ of the rain ceremonies, the kachina dancers would often visit the homes of the children. They would ask the children if they had been 10________ and give them gifts of food.

1. lived watching hoped	2. travel play learn	3. kinds dolls spirits	4. wanted believed caught	5. decorated burned planted
6. food warning gifts	7. remind know carry	8. dancing wear dress	9. middle done end	10. good happy kachina

Name ____________________

Woodland Canoes



As you read this story, circle the correct word in each numbered box at the bottom of the page.

The Woodland Indians used dugout canoes and birch 1.________ canoes for fishing and transportation. Dugout canoes were made by hollowing out large trees. These heavy canoes could 2.________ from 10 to 15 men. Smaller lightweight canoes were made out of birch bark.

To learn about how birch bark canoes were made, we need to 3.________ more about birch trees. The birch tree used for making birch bark canoes is called the "Paper Birch" or "White Birch." Sometimes it is also called "Canoe Birch." The Paper Birch 4.________ to be from 60 to 80 feet tall. The bark from these trees grows in horizontal sheet-like layers. A 5.________ birch tree may have as many as nine layers of bark.

In the springtime when the birch trees are moist and pliable, they are 6.________ down. The bark is carefully peeled off 7.________ large sheets. The outside layers of bark are thick and white. Thinner brownish colored layers are 8.________ . After the bark is peeled, it is shaped, *dark side out*, over a hardwood canoe frame. It is sewn together 9.________ spruce tree roots. Then it is allowed to dry and is sealed with pine tree gum to 10.________ it water water tight.

1. dirt skin bark	2. weight hold lift	3. listen see know	4. grows planted falls	5. small strong large
6. pushed cut bent	7. with in beside	8. inside under near	9. because into with	10. carry make float

Name ____________________

Canoes

As you read this story, circle the correct word in each numbered box at the bottom of the page.

The Coastal Indians were sometimes called "canoe Indians." Canoes were used as 1.________ for fishing, trading, visiting, and going to war. Shovel nose canoes were small and made to be used for traveling and fishing in rivers. Large, 50 foot-long sharp nose 2.________ were used for whale hunting. They could carry 20 to 30 people and cut easily through 3.________ ocean waters.

Canoes were made from half of a cedar log. The log was roughly shaped by splitting off slabs of wood. The inside was hollowed out by 4.________ burning and scraping away the charred wood. Then, the hollowed-out center was 5.________ with water. Hot rocks were dumped 6.________ the canoe to warm and soften the wood. Wooden crosspieces were put in the center of the canoe to 7.________ the sides and make the canoe wide in the middle and narrow at the ends.

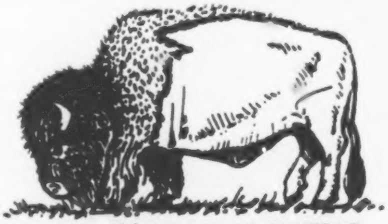
After the canoe was stretched and shaped, the water was then dumped 8.________ . The canoe was allowed to dry. When it was dry, it was sanded to make it 9.________ . The rough dried skin of shark or dogfish was used for sandpaper. When the sanding was 10.________ the Coastal Indians rubbed the canoe inside and out with whale oil to give it a waterproof seal and preserve it. Canoes were kept covered with mats when they were not being used. The Indians knew that if they damaged their canoes, it would take a long time and a lot of hard work to make a new one.

1. housing transportation traveling	2. canoes longhouses trees	3. smooth light rough	4. slowly chopping quickly	5. chilled carried filled
6. out into over	7. close stretch break	8. out underneath into	9. bumpy clean smooth	10. started finished work

Appendix F cont.

Name ______________________________________ Food Source

Hunting the Buffalo



Buffalo meat was a major food source for many Plains Indians. Before these Indians had horses, they had to hunt on foot for buffalo. Because buffalo have poor eyesight, Indians could get very close to them before being discovered. Then men could use spears or arrows to kill the animals. Sometimes Indians forced the buffalo over cliffs. When the animals landed below, the Indians killed any of the animals that were still alive.

Once a buffalo was killed, it was cut up right away. The most prized parts of the buffalo, such as the tongue, were cooked and eaten as the butchering took place. Then parts of the buffalo were loaded onto a dog travois and taken back to camp. A travois was a type of sled made out of two poles attached to a dog's shoulders. When the buffalo reached the Indian camp, the women tanned the hides and made pemmican, a mixture of berries, animal fat, and dried meat similar to our beef jerky.

There were two major buffalo hunts each year. The biggest hunt of the year took place in the fall. At that time the buffalo had put on weight for the cold winter ahead and they were the fattest they would be all year. Their coats were heavy with wool to protect them against the cold. Indians used the wool and skins and preserved the meat for food throughout the cold winter months. In the spring another hunt took place. This hunt was only for meat and skins. By spring, buffalo had shed their winter coats for the warmer weather.

Great ceremonies were held before buffalo hunts. The Indian men painted themselves and danced in the center of the Indian village. In some tribes, men wore huge hats with buffalo horns as they danced. They asked the spirit of the buffalo to help them have a good hunt.

1. What is a travois? ______________________________

2. How were buffalo killed before Indians had horses? ______________________________

3. When were the major buffalo hunts held? Why? ______________________________

4. Why did Indians have special ceremonies before buffalo hunts? ______________________________

Appendix F cont.

Name ______________________________________ Meeting Basic Needs

How the Buffalo Was Used

Plains Indians had over two hundred uses for buffalo. They used almost every part of the animal. Rawhide was made from the skin of the buffalo. Indian women made it by stretching a hide and drying it in the sun. Then they scraped all the flesh, hair, and fat from it. The result was a strong, thick leather.

Buffalo hide had many uses. It was tanned and made into tepee coverings, robes, blankets, and clothes. Sometimes the shaggy hair of the buffalo was left on the hide to give warmth. Plains Indians stretched buffalo hide to make drums. They also made a round boat called a bullboat out of willow covered with buffalo hide. Even saddles and the shields used in battle were made from the hide.

The hide was not the only useful part of the buffalo. The buffalo sinew, or tough cord of tissue, was used as thread. Indian women sewed tepee coverings and clothing using it. The buffalo stomach was used as a cooking pot, and buffalo shoulder bones were used as hoes. Paint brushes and decorations were made from the hair. The Indians also hollowed out the horns to create eating and drinking utensils. Wearing a buffalo horn headdress was considered one of the highest honors in an Indian society.

Buffalo meat was very important to the diet of Plains Indians. Often it was sliced into thin strips and dried to make jerky. This food could be kept for long periods of time. It was carried by groups moving from place to place and was eaten without further cooking. Sometimes this dried meat was combined with mashed berries and animal fat. This mixture was called pemmican.

1. Why was it very important for the Plains Indians to have successful hunts?

2. Do you think the Plains Indians would have stayed on the plains if there were no buffalo? Why or why not?

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Appendix F cont.

Name ____________________

Longhouses

As you read this story, circle the correct word in each numbered box at the bottom of the page.

The Coastal Indians lived along the shores of 1.________ water rivers or near the salt water of Puget Sound and the Pacific Ocean. Their winter 2.________ were called longhouses.

Longhouses were made of large overlapping cedar planks. They had pointed roofs to 3.________ the rain. Some of the longhouses 4.________ 200 feet long. These homes were so large that several families could live together inside.

There were 5.________ windows in the longhouses. Large fires burned in the middle of the dirt floor. A hole in the roof allowed the 6.________ from fires to escape. Cedar and cattail mats were hung up to make small rooms for the families. The mats were also 7.________ for rugs and mattresses.

The floor of the longhouse was covered with cedar 8.________ shavings. If the floor got dirty, the shavings were swept outside and new shavings were 9.________ down on the floor.

The Coastal Indians lived in longhouses from November to April each year. The summer homes of the Coastal Indians were simple lean-tos or huts called cattail mathouses. The outside was 10.________ with cedar bark mats and cattails. These homes could be easily moved from place to place in the summer as the Indians gathered food to prepare for the next winter.

1. cold warm fresh	2. canoes homes clothing	3. hold catch shed	4. were lasted was	5. near not no
6. chimney smoke air	7. used made taken	8. splinter seeds bark	9. thrown hung gathered	10. under covered nailed

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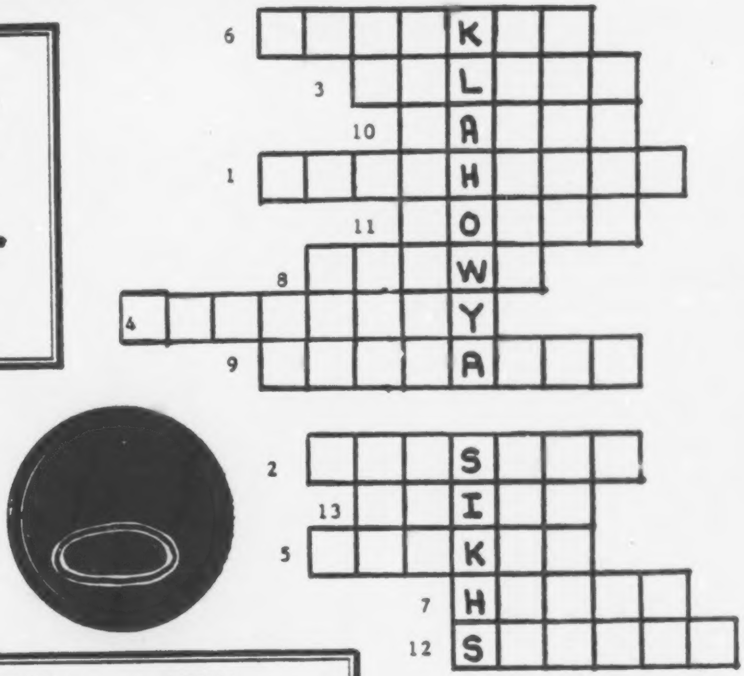
Appendix F cont.

Name ______________

"Klahowya Sikhs"

Look at the list of words in the word box. They are words you will learn about as you study the Coastal Indians. Unscramble the letters of each word at the bottom of the page and fill in the word puzzle. One letter for each word has been written for you. When your puzzle is complete, you will have a Chinook Indian greeting.

- Blanket
- Tribe
- Ceremony
- Totem
- Potlatch
- Symbol
- Spawn
- Coastal
- Longhouse
- Basket
- Honor
- Salmon
- Canoe



1. HLOONUSGE
2. TSCAOAL
3. NLMAOS
4. NREYOECM
5. SEBKAT
6. ALETBNK
7. NHOOR
8. PWSAN
9. OAHPCTLT
10. AONEC
11. TMEOT
12. BSLMOY
13. ITEBR

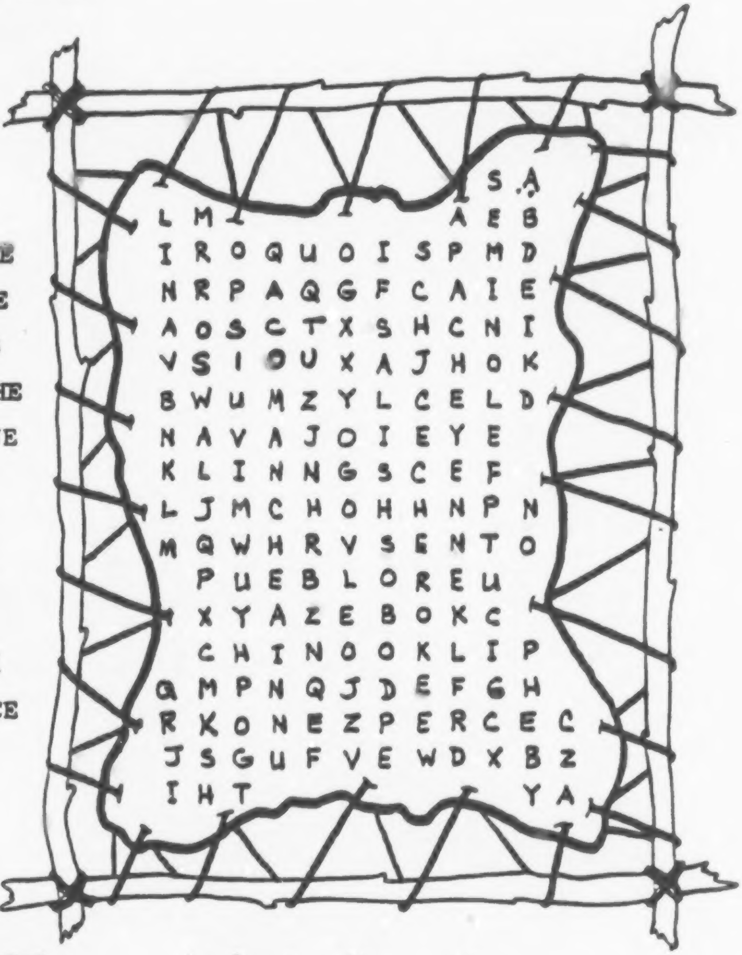
KLAHOWYA SIKHS in Chinook jargon means "hello friend".

Appendix F cont.

Name ____________________

Look for each of these Native American Tribes in the word search. The names can be found either across or down.

CHEROKEE
SEMINOLE
IROQUOIS
COMANCHE
CHEYENNE
SIOUX
PUEBLO
APACHE
NAVAJO
CHINOOK
NEZ PERCE
SALISH



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                    S A
L M               A E B
I R O Q U O I S P M D
N R P A Q G F C A I E
A O S C T X S H C N I
V S I O U X A J H O K
B W U M Z Y L C E L D
N A V A J O I E Y E
K L I N N G S C E F
L J M C H O H H N P N
M Q W H R V S E N T O
  P U E B L O R E U
  X Y A Z E B O K C
  C H I N O O K L I P
Q M P N Q J D E F G H
R K O N E Z P E R C E C
J S G U F V E W D X B Z
I H T                 Y A
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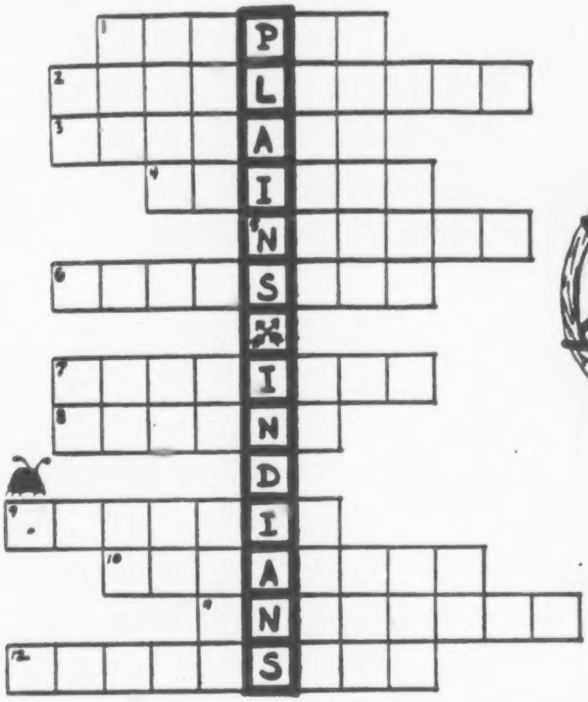
Tribes Word Search

Appendix F cont.

Name ____________________



This symbol means "sun". The one in the puzzle is "friendship."

Clues

1. cone-shaped skin tents
2. Indian "suitcases"
3. bison
4. Indian groups
5. people living without permanent homes
6. soft leather used for clothing
7. dried meat
8. grass lands
9. type of sled for hauling
10. kind of weapon
11. quick, deerlike animal
12. shoes made of buffalo hide

coup
pemmican
antelope
travois
plains
moccasins
teepee
nomads
buckskin
tribes
ceremony
tomahawk
buffalo
parfleches

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Appendix F cont.

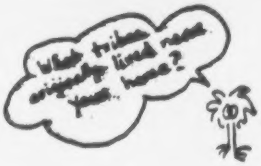
Name ____________________

Indian State Names

Thousands of places in the United States have names taken from Native American languages. Many cities, towns, mountains, and rivers are named for the people who first lived in the area.

Eight of the states in the United States got their names from Native American Tribes.

Unscramble each group of letters to make the name of a state. Each state's name came from the name of a Native American Tribe.


What tribes originally lived near your home?

1. NASSAK ____________________
2. ROISMIUS ____________________
3. HUTA ____________________
4. SAANKSRA ____________________
5. SLINLIOI ____________________
6. WOAI ____________________
7. CHAMGINI ____________________
8. MABALAA ____________________

Appendix F cont.
Chapter 4 Part 2

Major Indian Groups: Review

Directions: Write the word from below in the correct blank.

Pueblo
potlatches
Nomads
travois
staple food
Hogans
totem
assembly
kayaks

1. Eskimos used canoes called_________. (122)
2. A ___________ is a type of carrier used to transport ones belongings.(116)
3. Indians of the Great Plains who had no fixed dwellings were called___________. (116)
4. ____________ is the Spanish word for village.(120)
5. ____________ are the round or six sided dwellings made from logs and dried mud. (120)
6. ____________ were forms of animal spirits that the Northwest Coast Indians believed in. (121)
7. The food that people depend on most for their nourishment is called___________. (119)
8. An ____________ is a law-making body. (119)
9. _____________ are the great feasts hosted by the chiefs of the tribes. (121)

Directions: Circle the correct answer

10. The flat treeless land that stays frozen much of the year.(122)
swamps desert tundra

11. Dwellings of the Plains Nomads that were made by lashing poles together to make a cone were: (116)
tepees adobes hogans

12.House made of snow blocks: (122)
adobes igloos tepees

13. Ground cover that includes grass and grass roots is: (115)
sod potlatches cedar bark

14. Circular houses built over shallow pits were called: (115)
adobes lodges tepees

Directions: Write the letter of the answer that best completes each sentence in the blank.

_____15. These Indians depended on the buffalo for their food and shelter. (116)
a. Great Plains
b. Columbia Plateau
c. Northwest Coast

_____16. Because their main foods came from gathering and hunting the Indians of the ___?___ were similar. (118-119)
a. Great Plains, Great Basin, and California
b. Great Basin, California, and Columbia Plateau
c. Great Plains, Northwest Coast, and Eskimos

_____17. Acorns were the staple food of the: (119)
a. Eskimos
b. Columbia Plateau Indians
c. California Indians

_____18. This group of Southwest Indians farmed and lived in villages. (120)
a. California Indians
b. Pueblo Indians
c. Columbia Plateau Indians

_____19. These two groups of Indians were similar because they depended on hunting and fishing.(121-122)
a. Northwest Coast and Eskimos
b. California and Columbia Plateau
c. Eskimos and Great Basin

Directions: Write the word True or False in the blank.

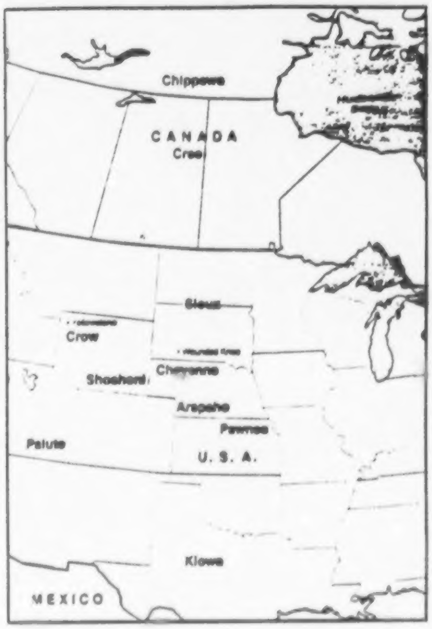
_____20. Life for the Columbia Plateau Indians depended on cooperation in hunting buffalo. (116-117)
_____21. Indians of the Northwest Coast had acorns as their staple food. (119)
_____22. The Indians of the Columbia Plateau chose both men and women to serve as chiefs and shamans. (119)
_____23. Hopi "means peaceful".(120)

Directions: Use complete sentences and proper grammar to answer the following.

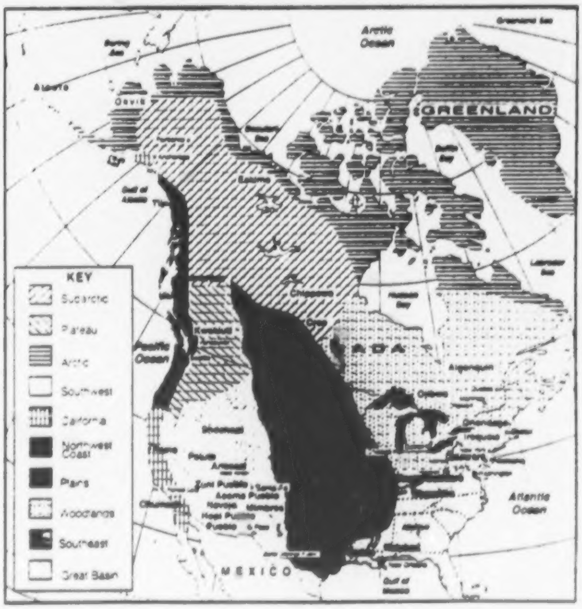
Which animal did the Great Plains Indians depend on to meet their needs? Explain how the Indians used this animal. (116-117)

Appendix G
Visually Aided Materials

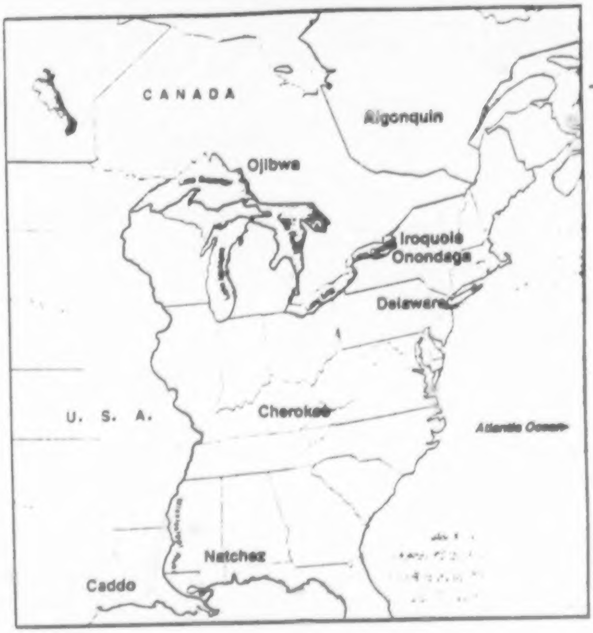
Major Plains Sites and Tribes



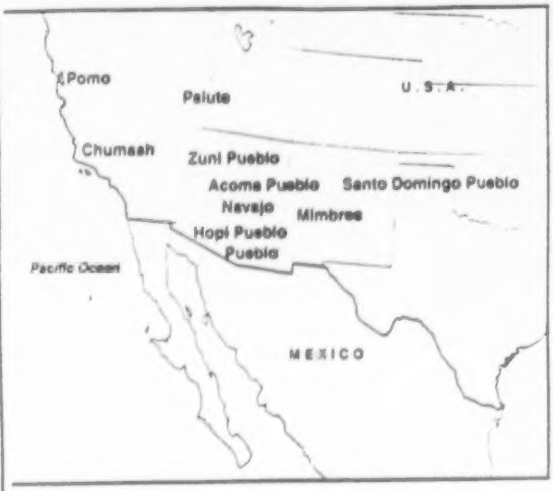
Major Sites and Tribes of North American Indian Art



Major Woodland and Southern Sites and Tribes

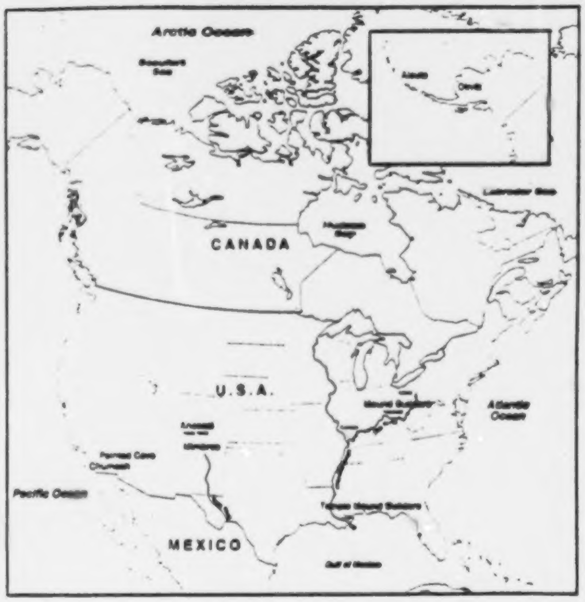


Major Southwest and California Sites and Tribes

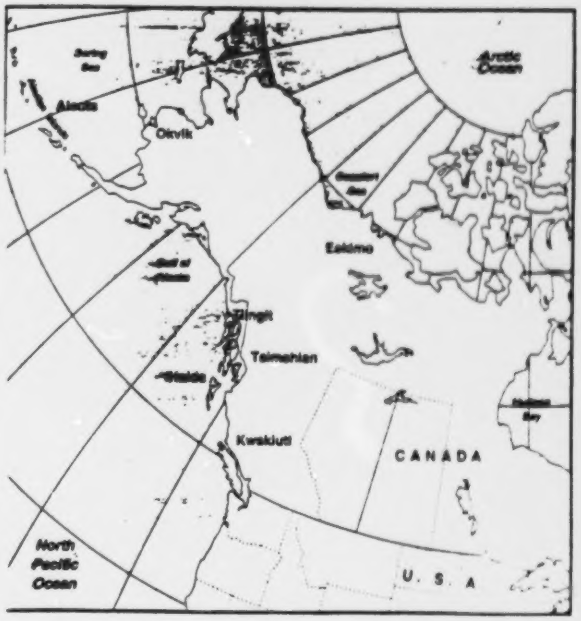


Appendix G cont.

Major Prehistoric Indian Sites and Tribes



Major Northwest Coast and Eskimo Sites and Tribes



Major Prehistoric Indian Sites and Tribes

Picture Commentary

PICTURE 1 *Mother and Child, Hopewell Culture*

This ceramic figurine was found by archaeologists in a burial mound in the Ohio Valley at a site called Hopewell. The Hopewell people were part of the Mound Builders culture of the Mississippi Valley area, the earliest civilizations of what later became the United States. The Hopewell culture produced many different kinds of grave offerings to be buried with the dead. This small sculpture shows a mother and child—the most common theme of the figures found at the burial site. Many of these pottery sculptures represent women in everyday activities.

From everyday objects like these, archaeologists have been able to learn about the way of life of these prehistoric peoples, and how their customs were handed down to modern times. For example, in some of the Hopewell sculptures the women sit with both legs tucked to one side, a tradition that the Sioux Indians have continued.

PICTURE 2 *Stone Effigy Figure, Mound Builders Culture*

The prehistoric Mound Builders cultures produced many kneeling figures with one hand resting on a raised knee. This fascinating example is from Arkansas. It was made in about 100 B.C. The figure is both solemn and intense and seems to be the work of a skilled artist. Such well-made sculptures by Mound Builders peoples have been found across a large section of the southern United States, indicating that skilled carvers worked in many different communities.

No one knows the significance of this pose. Early Spanish explorers found this type of statue in Mound Builders' temples, indicating that they may have been objects of worship. They may have been buried with the dead, or they may represent ancestral figures. Some are male and some female. Few are preserved today, because the Spanish invaders considered them to be examples of heathen idols and destroyed them.

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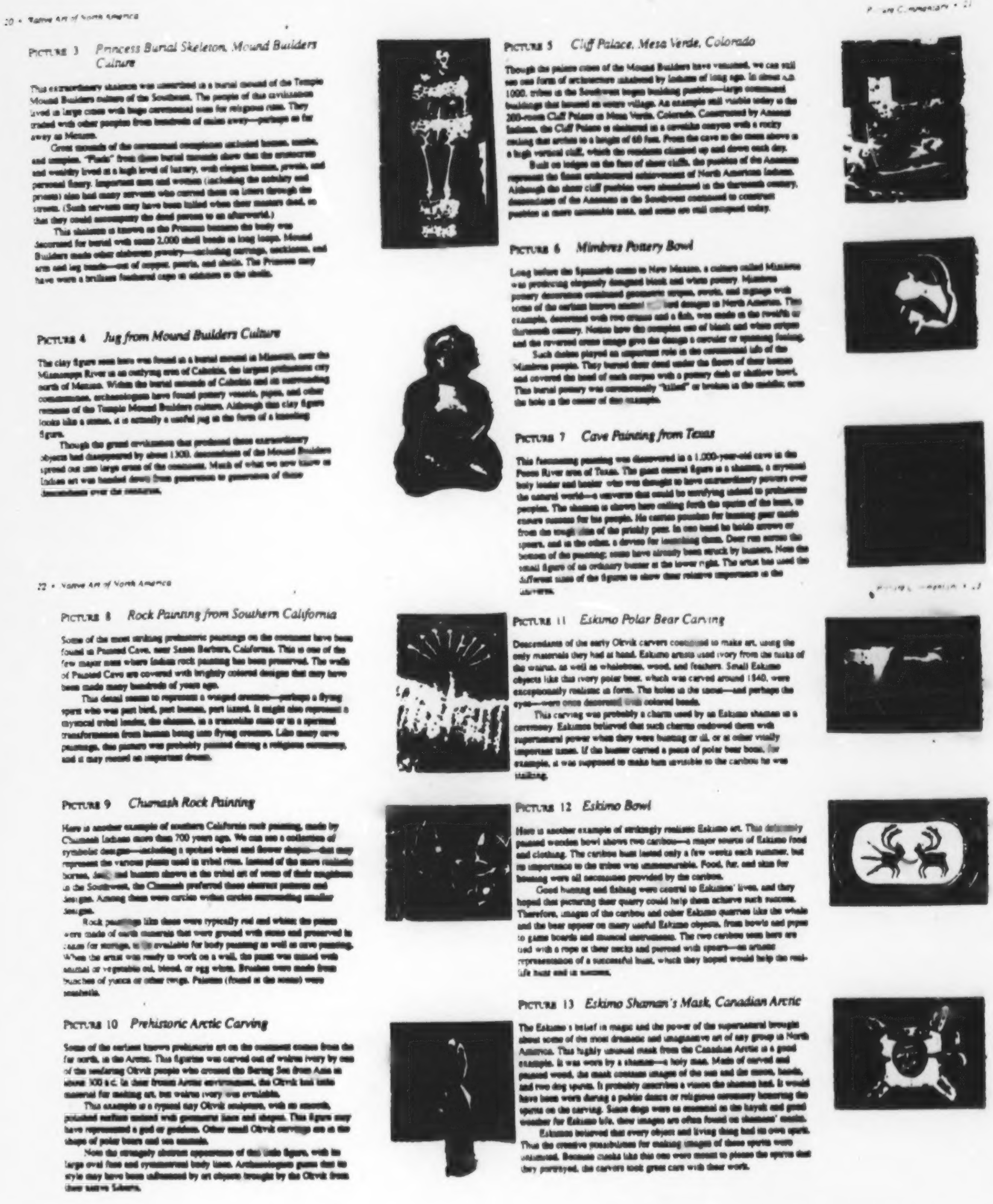

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PICTURE 3 *Princess Burial Skeleton, Mound Builders Culture*

PICTURE 4 *Jug from Mound Builders Culture*

PICTURE 5 *Cliff Palace, Mesa Verde, Colorado*

PICTURE 6 *Mimbres Pottery Bowl*

PICTURE 7 *Cave Painting from Texas*

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PICTURE 8 *Rock Painting from Southern California*

PICTURE 9 *Chumash Rock Painting*

PICTURE 10 *Prehistoric Arctic Carving*

PICTURE 11 *Eskimo Polar Bear Carving*

PICTURE 12 *Eskimo Bowl*

PICTURE 13 *Eskimo Shaman's Mask, Canadian Arctic*

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Picture 14 *Eskimo Shaman's Mask, Alaska*

This fascinating mask comes from the lower Yukon area of Alaska, where it was made for an Eskimo ceremony. It is very large—16 inches high—and is made of wood, whalebone, and seal thong (a strip of seal hide). It was painted reddish brown and white.

Eskimo masks were often designed to be distorted or grotesque, or even humorous (not unlike some contemporary art constructions). Abstract masks were only used for religious ceremonies. This example represents a face with two unequal eyes (one above the other) and a large gaping mouth stretching up one side. Above it is a skeleton hand and a hunting bow. Each element represents various spirits of humans and animals that a shaman has seen in a vision.

Since Eskimo masks represented images seen in dreams and visions, they were vividly imaginative in form, as seen here. The free exploration of abstract designs and images by Eskimo artists was very different from the more realistic ones of tribal artists in other parts of North America.

Picture 15 *Haida Drum Painting*

Like their neighbors far to the north, tribes along the Pacific Coast of Canada and the United States were believers in the supernatural and the mysterious powers of art. Haida, Kwakiutl, and Tlingit Indians made some of the most abstract and fascinating designs of any tribes on the continent. This Haida design, which covers a drum shaped like a box, shows typical elements of Northwest Coast art: bold and bright colors, strong black lines, and symbolic patterns, used to decorate objects for daily and ceremonial use. The patterns were based upon a symbolic design "vocabulary" that consisted of animal parts, such as eyes, ears, tails, fins, and paws. Each animal was represented by certain designs.

In this type of artwork, each animal was represented by certain symbolic designs made up of animal parts. The patterns shown here represent a bear. Note the repeated images of eyes, stylized paws (in the corners), and abstract mouths and nostrils. A pattern like this allowed the viewer to recall and relate to the animal and spiritual world.

Picture 16 *Tlingit Wolf Mask*

At great meetings called potlatches, the Northwest Indians dressed themselves as animal spirits in costumes and masks for ritual ceremonies involving dance, song, chanting, prayer, and fasting. The Tlingit mask seen here represents a wolf spirit. The person who wore it would have told, through words and dance, fantastic legends that honored the wolf spirits of their historical and spiritual importance. This ceremony was necessary because, according to tribal belief, although the natural world of animals and fish lived expressly to nourish human beings, every creature also possessed a bad spirit that could interrupt the supply of riches and bring illness and death. Masks like this were designed to honor and please the animal kingdom and thus keep the bad spirits away.

Picture 17 *Tlingit Salmon Man*

The Tlingit thought of the salmon as people in another form. According to Tlingit belief, every year the "Salmon People," who lived in a village under the sea, took on the form of the fish and swam upstream to become food for the Indians. After the salmon were caught and their flesh eaten, the Indians threw the bones into the sea so that they could be transformed back into living "Salmon People" to begin the cycle of life and death again.

This fine Tlingit painted wood carving of a Salmon Man shows the mythical relationship of salmon to humans. It shows a man emerging from a salmon's body. The combining of fish and human shapes (note the divided tail that suggests legs) is an example of the creative brilliance of Tlingit wood sculptors.

Picture 18 *Kwakiutl Whistling Mask*

This Kwakiutl wooden mask with its large round mouth was known as a "Whistling Grandmother." It symbolized the evil spirits who breathe out illness through their blowing lips and cause children to die. The mask would have been worn during a dramatic performance of tribal myths before the entire village. The main characters in these stories wore masks and costumes to make the happenings seem very real.

Made of carved wood painted red and black, this mask also has fur eyebrows and a fringe of human hair. Hair taken from an enemy's scalp was believed to possess supernatural power. After it was purified it was thought to give the wearer protection from evil.

Picture 19 *Kwakiutl Killer Whale Mask*

The Kwakiutl made some of the most colorful and exciting North American masks, such as this killer whale mask from British Columbia, Canada. Each mask represented a particular spirit—usually that of an animal or bird; this mask symbolized the fierce killer whale. During tribal ceremonies, masks like this one were worn by dancers and storytellers who brought to life mythological tales about the animal spirits in the tribal past. No two masks—even when they represented the same spirit—were completely alike. Each mask was designed according to its owner's interpretation of the legend. Therefore, sometimes the meaning of the mask was lost when its owner died.

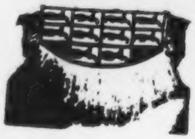
Parts of these masks were often movable, making them even more realistic. Note the string attached to the dorsal fin of this mask; the wearer could activate it while he performed.

Picture 20 *Tlingit Blanket*

The killer whale was apparently also the animal crest of the owner of this ceremonial blanket. A prized possession exchanged by Northwest Coast Indians in both the United States and Canada, the Tlingit blanket was often a gift given in a potlatch ceremony.

Woven of mountain goat wool and shredded cedar bark, this example—as with all Tlingit blankets—is decorated with repeated designs that identified the owner and his clan. Note the characteristic angular lines and abstract symbolic patterns; they are recognizably similar to the carved wooden masks and symbols of the tribe. The complicated weaving patterns of these Tlingit blankets make them the most admired textiles of the Northwest tribes.

Tlingit weaving was done entirely by women, from designs made by their husbands or fathers. The richest Tlingits paid a high fee to the women for weaving their blankets.



Picture 21 *Kwakiutl Thunderbird Costume*

Among the most spectacular rites of the Kwakiutl tribes was the Thunderbird ceremony. Imagine a man dressed from head to toe in the costume of eagle skins and feathers, topped by the dramatically carved and painted wooden mask, bursting into a room flapping his wings and uttering piercing shrieks. His giant beak identified him as the celestial spirit called Thunderbird. Just as some ceremonies included artistic representations of salmon or bear, the Thunderbird costume and mask were a disguise that seemed to bring the Thunderbird spirit to life.

Picture 22 *Haida Shaman Figure*

This wood sculpture comes from British Columbia in Canada, where it was made by a Haida carver. It represents a dead shaman, or holy man, as he would have appeared in his grave box or coffin. His feet point downwards under the box to show his position buried in the earth. He is wearing his dance skirt.

The carving emphasizes the shaman's thinness, perhaps to indicate that he had starved to death. (A similar carving—perhaps by the same artist—is said to have pictured a shaman who was lost in the woods and died of starvation after breaking both legs.) The prominent ribs of this carving might also have been influenced by the art of nearby tribes from the Northwest Coast who specialized in "X-ray" carving that revealed the skeletal structure of the body.

Made around 1830, this poignant sculpture shows us a more personal, emotional side of Northwestern tribal art.

Picture 23 *Tsimshian Totem Poles*

Totem poles—giant carved and painted poles like those seen here—are among the most striking and memorable art of any group. Along the Northwest Coast of North America, tribes like the Tsimshian, the Haida, and the Kwakiutl erected these giant carvings in front of the houses of different families.

In elaborate and detailed carving like that shown here, totem poles told the story of the family's ancestry and history, and honored the clan's animal ancestors. They announced to all visitors the family's position in the community; those with high status had many more rights and privileges than others in the village. The center totem shown here, for example, belongs to a family of the Wolf Clan. It honors the Thunderbird, seen in the center. Above and below the giant bird are two rows of children who are the offspring of an ancestor captured by the Mountain Eagle Spirit.

Picture 24 *Kwakiutl Totem Poles*

The Kwakiutl made the magnificent totem poles seen here. They now stand in a park in Vancouver, Canada. They are topped by giant eagle wings and include images of both humans and animals.

Totem poles had several different uses besides announcing the family's history (much like a coat of arms). Totem poles like these could be a memorial to a dead chief; the chief's heir would place the memorial totem pole along the beach in front of the village or alongside the chief's grave. Sometimes the totem pole actually contained the remains of the body. Memorial totems among the Kwakiutl often bore the carving of a birdlike figure at the top, as these poles do. Some totems were actually part of the owner's house, helping to support the roof. Sometimes totems were used to humiliate an enemy. They referred to the owner's success over another chief and were the cause of revenge and continuing feuds between rivals.

Picture 25 *Pomo Basket*

Basket-making was a form of tribal art practiced all over the continent. Some of the finest North American baskets were made by the Pomo Indians of California. Pomo baskets like the one shown here were made of dried grasses and willow branches and feathers, ornamented with beads and shells. Thousands of tiny stitches—some too small to be seen without a magnifying glass—hold the materials together. When the explorer Sir Francis Drake reached the coast and first met Pomo Indians in 1579, he described a feathered basket like this one as "so well wrought as to hold water."

The fine work and bright decorations on this basket may have taken a full year to complete. The feathers for Pomo baskets came from birds like the meadowlark, the bluebird, the woodpecker, and the quail; the beads were made from shells like the abalone and clam. Pomo baskets made with these many different natural elements are among the most prized baskets in the world today.

Appendix G cont.

Picture 26 *Hopi Baskets*

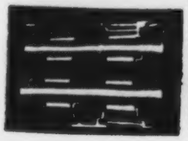
Hopi baskets from the Southwest are also among the most highly treasured, for both their craftsmanship and their interesting design. Women were the designers and basket-makers of the Hopi tribes. The reds, yellows, and blacks of the baskets shown here are typical; green was sometimes added. Hopi basket patterns vary from geometric triangles and swirls (as with the top design here) to symbolic designs (like the one on the bottom) that might picture masks, kachinas, or other tribal images. Woven baskets and plaques with particular symbolic patterns were used in many tribal ceremonies.

These baskets were made of grasses sewn together with thin strips of yucca leaves. In addition to ceremonial containers, basket-weaving provided many important accessories for Hopi life, including trays and bowls for corn and other foods and backs for infants' cradle boards.

Picture 27 *Navajo Rug Detail*

The Navajos are world-famous for their skill as weavers. Navajo women were the weavers of their tribes. They spun the wool on a spindle, dyed it with natural colors made from ores and vegetables, and then wove it on large looms made from tree trunks and branches. After weaving, the rug was flattened by burial in damp sand for a few days. (This process is still in use in some places today.)

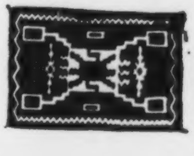
The design of Navajo rugs has developed from the earliest simple stripes of red and black to more complicated patterns. This example, made about 1880, includes wide dividing strips, which indicate that it was woven for a chief. Like modern op art, Navajo geometric designs often include complex spatial illusions made with repeated patterns. Do the white boxes holding the red stripes on this rug seem to be in front of or behind the crosses?



Picture 28 *Navajo Storm Pattern Rug*

While Navajo rug design seems purely geometric at first glance, it can also be seen as a collection of abstract images of landscape and nature. This rug's design, for example, represents a storm. The zigzags, squares, and other angular patterns are symbols of a southwestern storm, thunder and lightning on a rainy gray landscape. The importance of the storm to crops is emphasized by the two images of growing corn on each side of the center design.

The close relationship of the Navajo to the land and nature is reflected in every aspect of their art. The long stripes and squared-off patterns in their weaving can be interpreted as abstract views of the southwestern landscape with its buttes, mesas, long horizon lines, canyons, and plateaus.



Picture 32 *Zuni Pottery Water Jar*

Here is another style of Pueblo Indian pottery design. The Zuni created particularly fine jars and bowls. Their distinctive and delicate red and black designs were filled with symbolic and spiritual meaning. Zunis believed that pottery had a conscious existence (if a pot broke during firing, the sound was thought to represent the cry of its escaping spirit). When the Zuni potter (always a woman) had completed her bowl or jar, she left a piece of food in it while it was baked in the kiln because it was now a "Made Being."

The image of a deer often appears on Zuni pottery, as seen here. The deer is painted with a red heart connected by a red line to its mouth. This was called a "spirit path," which represented the deer's breath or life force.

As in this example, different designs appear on the neck and the body of Zuni pottery. The two sections are always divided by a life line, broken somewhere to allow the spirit of the maker to escape.

Picture 33 *Hopi Helmet Mask*

Here we have a Hopi kachina helmet mask. Kachinas are the gods of the various Pueblo Indian tribes of New Mexico and Arizona. During ceremonies throughout the year, members of the tribe put on costumes and masks like this one and impersonate the gods in dance and rituals to ensure their favor. Hopi kachina ceremonies include over 330 different personages, each with a different costume and mask. The most sacred kachina masks never change. The lesser kachina spirit masks have ears, snouts, beaks, and other dramatic features. We can tell that this is a lesser kachina spirit mask because it has a tooth-filled snout, perhaps representing a wolf. Made of painted leather and feathers, this mask combines typically geometric patterns around the eyes with the fanciful snout and the eagle-feathered crest and decorations.

Picture 34 *Hopi Kachina Doll*

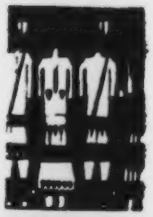
This is a small model of a kachina dancer. Called a kachina doll, it is carved of wood. Kachina dolls are given to Hopi children to play with and to hang in their homes. Since the dolls' purpose is to teach the children the meaning of their tribal heritage, the masks and costumes of each kachina doll are made as realistically as possible. This example shows the elaborate detail of one ceremonial headdress and mask. Because the mask is considered the most important part of the costume, it often dwarfs the body. The complicated carved wooden headdress on this doll is adorned with feathers.

Kachina dolls have become so popular with outsiders that they are now often produced purely for tourists. There is even a Mickey Mouse kachina doll today. But the original dolls are among the most interesting and skillfully made sculptures of any tribal art in North America.

Picture 29 *Navajo Rug Detail (Four People)*

In the late 1800's Navajo weavers began to sell their rugs and blankets to outsiders (including other Indian tribes), who brought them to their homes around the world. As the blankets' popularity grew, the weavers broadened their design ideas to appeal to bigger markets. The result was pictorial rugs like this one, with increasingly complicated patterns and woven pictures that showed Navajo ceremonies and scenes.

This fine example shows a line of Navajo figures dressed in ceremonial dance costumes decorated with feathers. Despite the recognizable figures in decorative clothing, the design remains strongly angular and geometric; the rows of feathers resemble the repeated patterns of the purely abstract rugs. The basic Navajo rug color scheme of red, white, black, and gray also remains.



Picture 30 *Navajo Silver Jewelry*

Silver jewelry made by the Navajos is famous throughout the world. Simple symbolic designs that resemble line drawings and the squared-off images of weaving characterize Navajo jewelry patterns.

On the left is a pendant necklace of a supernatural figure in the form of a dancer wearing a ceremonial headdress, while the two objects on the right are pins in the shape of a sun and a bird with its head turned backwards. All three designs are related to tribal events: Dance is an important part of most Native American ceremonies, while the sun and bird are both symbolic tribal images.

Navajo silver jewelry, like this pendant, is often inset with turquoise stones, for turquoise has both symbolic and artistic value. Ancient peoples in many parts of the world buried their dead with turquoise stones.

Picture 31 *Pueblo Pottery Jar*

The most admired pottery in North America was made by the various tribes of Pueblo Indians in the Southwest. Pueblo tribes, including the Hopi, Zuni, and Acoma, each had their own style of pottery design. Patterns ranged from the severely geometric black-and-white style of the Acomas to the brightly painted, pictorial vases of the Hopi. No matter how different the patterns, however, all Pueblo pottery had special significance and spiritual meaning for its makers and users.

This example comes from a pueblo at Santo Domingo near Santa Fe, New Mexico. Its style of simple geometric circles and triangles in black and cream is typical of the Acoma Indians. The art of making beautiful ceramic ware like this jar was brought to the Southwest by Mexican Indians in prehistoric times. Many Pueblos still make pottery today, using the traditional tribal designs.

Picture 35 *Navajo Sand Painting*

Among the most interesting—but least permanent—examples of Native American art were the sand paintings of the Navajos, used in healing ceremonies. When someone was sick, as many as a dozen artists were called upon to make a symbolic painting using different colors of sand. Crowds came to watch and eat as a medicine man spread a light layer of sand on the floor of the patient's home. He then chose symbolic designs intended to bring health as well as good crops to the people of the tribe. Using colors ground from rocks, root bark, crushed flowers, charcoal, and different sands, the powders were sprinkled into a complex pattern. When the picture was finished, the patient was set in the middle of it while the shaman chanted prayers to drive away the evil spirits. When the ceremony was over, the painting was destroyed, even though it may have taken days to make.

This sand painting shows the Navajo gods of the four main compass points. The principal god—the god of the East, painted white—is at the top. He holds various good-luck charms, including a rattle and a basket symbolizing the harvest. Below him is a white diagonal representing corn, one of the four sacred plants of the Navajos. The god of the West, at the bottom, presents another important plant: squash, shown in yellow. The god of the South, on the right side, is seen with a gray beanstalk, while the god of the North appears on the left with a black stalk of tobacco. The four figures are shown within an arching rainbow. As you can see, Navajo sand painting was symbolic; each pattern has a specific meaning.

Picture 36 *Sioux Deerskin Painting*

Images of visions and dreams were especially important in the artwork of Plains Indians. In paintings like this one the actual, the dream, and the spirit world are united. This reflects the strong belief of many Sioux Indians that the visions of dreams are as real as the waking state, and that spiritual forces pervade the world of nature.

This Dakota Sioux painting on deerskin is a vision of spirits in the sky. Both the sun (on the left) and the moon are shown in their homes in the heavens. The houses in the sky are bigger and better than those on earth. Prayers arrive in the heavens through the eagle-feather-fringed pipe stems. A great medicine man leads a horned spirit figure, warriors, and other tribe members in a ceremonial dance. The Dakota artist who made this painting interpreted his spiritual vision with both realistic details like the houses and figures and traditional geometric patterns representing the earth.

Appendix G cont.

Picture 37 *Pawnee Drum*

Ceremonial life among Plains tribes included chants and dances, accompanied by music. The major musical sound came from the rhythmic beats of a drum, like this one. The drum itself was decorated and had important significance to the tribe. This drum was made by Pawnee Indians who lived in Kansas or Nebraska. It is made of painted rawhide. It had two sides and was carried and beaten with a stick. Its central areas is symbolic—like most tribal designs. Both colors and symbols represented different things to different tribes. For example, the color red could mean thunder, sunset, or blood, while black could represent night or safe return from battle. To some tribes a cross represented a star, while to others it could mean the four quarters of the earth.

Picture 38 *Plains Indian War Shirt*

Even the designs on clothing had great spiritual significance to the Plains Indians. Here we have a much-prized war shirt, an example of a carefully ornamented piece of clothing that was at the same time decorative and meaningful. This war shirt is made of buckskin, with hanging strips of fringe that increased the impression of motion as the warrior rode his horse. It also bears the geometric, striped bead decorations that were typical of tribal design among Plains Indians. (Sometimes the elaborate beadwork could weigh as much as seven or eight pounds.) In addition, the shirt has a centerpiece of human hair, a scalp, proving the warrior's bravery in a previous battle and hopefully protecting him from danger in the next.

Picture 39 *Shoshoni Rawhide Shield*

This shield was made and carried by a Shoshoni in the Utah area. Battle shields, made of rawhide or buckskin, were painted with designs believed to have the power to protect the carrier. The shield's owner did the painting, basing the design's symbols on a personal vision he may have had.

This shield is hung with eagle feathers—an important symbolic element in Plains Indian decorations. The shield is painted with many celestial symbols, including a sun, stars, a moon, and a jagged image that may represent lightning. A buffalo and a bow and arrow complete the design, the significance of which was known only to the shield's owner.

Picture 40 *Cree Quilled Shield*

Native Americans made use of whatever material was available to them for decorating their belongings and creating colorful and meaningful objects. Among the most unusual materials were the quills of porcupines, which were used to ornament many different tribal objects. This rawhide Cree shield, from the Plains of Canada or the United States, is covered with quillwork in a pattern of geometric circles. (Designs for men were often in circle shapes, while women's clothing and objects were frequently decorated with stripes.)

The quills were removed from the carcass of the porcupine. Then they were flattened out by sucking and biting and pulling between the teeth. After dyeing with natural dyes, the quills were wrapped around strips of rawhide in ornamental patterns, with the striking results you see here. This elaborate technique was eventually replaced by the use of glass beads, which were easier to handle and allowed more intricate designs.

Picture 41 *Sioux Horse Effigy*

The horse was such an essential part of tribal life among Plains Indians that its image appears frequently in their art. The Sioux were so attached to their horses that they sang to them and made effigies, or models, like this one to those killed in battle. But this graceful carved horse is unique; it is the only complete horse sculpture made by Plains Indians in existence today. It depicts a wounded horse lunging forward with outstretched neck. Its horsehair tail and its leather reins make it seem curiously real, while its narrow, carved wooden body seems almost supernatural in its sense of motion and coming death.

This carved horse was probably used in a Victory Dance ceremony, because wounded horses were sometimes honored by being brought into the dance and covered with paint where they had been struck by a bullet. This effigy would have been a striking addition to the ceremony, for it is more than three feet long and was originally painted in bright colors. The holes painted red represent the horse's wounds.

Picture 42 *Chippewa Saddle*

Plains horsemen used a well-decorated and beaded saddle on many occasions. Saddles like this Chippewa one were made of elk or moose hide stuffed with plant materials and then elaborately ornamented. All beading was done by the women of the tribe.

This example of tribal art is especially interesting because both its materials and style indicate great social and political changes in the lives of native North Americans. Originally, tribal art was decorated with quillwork in geometric patterns. Contact with white settlers made glass beads available, which began to replace quillwork in tribal embroidery. Glass beads came in many different colors and were much faster and easier to use.

An even greater change was the use of flower designs, like the pretty blossoms on this saddle. First introduced by French missionaries, floral patterns, like glass beads, spread from the Woodland Indians to the Plains.

Picture 43 *Dakota Sioux Parfleche*

This small Dakota Sioux trunk or box, called a parfleche, was used to carry dried meat and other articles. Made of stiff rawhide from which the hair had been removed (by soaking in lye), the parfleche was an important possession of all Plains Indians. Its name comes from the French words for warding off arrows, and it was, in fact, exceptionally strong.

The designs of parfleches, as we can see here, were usually geometric, with triangles, diamond shapes, and zigzag patterns painted in bright colors. Only tepee covers, shields, and skin robes of the Plains Indians bore pictures that were representational—usually images of war. Other objects, like this parfleche, were almost always decorated with abstract patterns. The different patterns and colors often identified the tribe.

Objects like the parfleche were prepared and painted by women, who also did all quillwork and beadwork, silk embroidery, and geometric painting. Men produced the symbolic and realistic designs on equipment for ceremonial occasions and warfare.

Picture 44 *Dakota Sioux Winter Count*

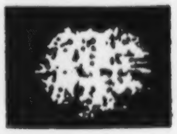
In addition to purely geometric and visionary art, the Dakota Sioux also produced drawings like this one on buffalo skin that were both pictorial chronicles of events and calendars. These drawings were called "winter counts." Each year the warrior who was keeping the record added to it. A different symbol represented each of the year's major events, such as battles, illnesses, and treaties.

This winter count was made by a warrior called Lone Dog, between the years 1800 and 1871. Though this was a major time of white invasion, Lone Dog's winter count pictorial history is more concerned with tribal affairs. Reading from the center outward, the succession of pictures tells us of twenty-four battles or raids with other tribes (symbols include arrows piercing a tepee or horses), four epidemics (symbols include a body covered with spots—probably smallpox brought by white invaders), a treaty with the Northern Cheyenne (represented by a handshake—a custom adopted from whites), and a shower of meteors (pictured as dots surrounding a crescent moon).

Picture 45 *Plains Indian Buffalo Hide Painting*

Another example of Plains Indian art that was designed to provide a realistic account of true happenings were their pictographs, paintings made on the hide of buffalo. You can see many of the typical characteristics of these paintings in this example. These works described the war and hunting exploits of their owners. They were drawn and colored in with natural paints made from earth materials and plant juices. Figures of people and animals were usually simple profile views similar to the early designs that ancient ancestors had left on rock formations across the country.

In this buffalo hide painting, you can see a number of activities taking place. On the far right a brave is grabbing the head of a horse that is lunging toward him. In the center a hunter on horseback is pulling a captured bull, while at center bottom two braves are engaged in hand-to-hand combat. Many of the figures shoot bows and arrows, but this painting, made around 1830, also shows an Indian with a gun at the top left, indicating that white people and guns had already arrived.



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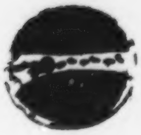
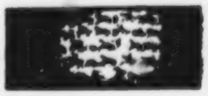


PICTURE 46 *Crow Shield*

The dramatic changes brought about by the coming of white people can be seen in Plains art in many different ways. An example is this spectacular shield, which was once owned by the Crow chief, Big Bear. Crow Indians lived on the Plains in what is now Montana and in mountainous regions around Yellowstone. They were hunters and fierce warriors.

This shield is made of painted buffalo hide and buckskin. Its design shows clearly how the white people's introduction of firearms changed native life. The bear is shown charging into a hail of bullets. The large footprints and repeated line patterns emphasize the speed of the charging animal. The shield's design probably also had special symbolic significance to Big Bear, giving him protection in battle. The painted lines may represent the rays of the sun or thunderclouds, while the bear image is related to Big Bear's name and experiences.



PICTURE 47 *Sioux Pictograph*

A more naturalistic style developed among tribal artists influenced by the painting styles of white artists who visited their settlements. You can see the changes in this example. Instead of the simpler pictographic drawings of the past, tribal artists began to do more realistic paintings of men and horses, and to use cloth instead of animal skins as a background surface. They paid increasing attention to the proportions and real-life action of running horses, and to the colors and details of costumes.

The pictograph seen here was made on a piece of muslin cloth by a Sioux artist. This dramatic scene pictures a battle between white soldiers and Indian braves, with many casualties on both sides. Like the earlier painting, the horses and men are again all in profile, but a much greater variety of movement and action is shown. The many different positions of the horses—including falling, bucking, and charging beasts—shows this new attention to realism. The white men fighting the Indians are clearly pictured in hats and uniforms firing guns, while the Indians are shown in headdresses, some with bows and arrows, and others with guns as well.

PICTURE 48 *Arapaho Ghost Dance Dress*

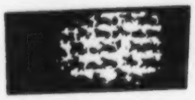
This Arapaho dress represents one of the most tragic periods in tribal history. In 1889 and 1890, Plains Indians living in desperate circumstances on reservations eagerly embraced the new Ghost Dance religion introduced by a Paiute prophet. They developed a new art form—shirts or dresses like this one, painted with mystical symbols and worn during the Ghost Dance. The faithful thought that these specially painted garments had a magical ability to stop bullets. That belief is expressed in the turtle design in the lower center of this dress. The Arapaho often used the turtle as a symbol because the turtle's shell protected it from danger. Other decorations seen here include stars, thunderbirds, a human figure, and eagle feathers.

Followers of the new religion believed that if they performed the Ghost Dance and did no harm to anyone, the buffalo would return, the white people would disappear, and all the Indians' dead would return to life. Tragically, white officials observing Ghost Dancers in garments like this thought they were viewing a war dance, complete with warrior costumes. This mistake led to the horrifying slaughter at Wounded Knee, South Dakota, in December of 1890.

PICTURE 49 *Chippewa or Ojibwa Doll*

The thick forests of the East and Great Lakes area of the United States and Canada were home to large tribes known as Woodland Indians. Unlike the Plains Indians, they had plenty of trees to use for everyday articles, and their wood carving was highly skilled, as we can see here. This example of ceremonial carving is a wooden doll, made in the Great Lakes region by Chippewa or Ojibwa Indians. One of the most important institutions in Ojibwa life was the Grand Medicine Society, made up of men and women who practiced healing with both herbs and supernatural methods. This small, highly polished doll, which is about 17 inches high, was used by a juggler in a curing ritual.

Woodland Indians also carved many useful everyday items out of wood, and finely decorated them with highly polished and realistic animal heads or human faces. Their wood sculptures carved for magical or religious purposes, like this doll, were even more finely crafted and are greatly admired today.



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PICTURE 46 *Crow Shield*

The dramatic changes brought about by the coming of white people can be seen in Plains art in many different ways. An example is this spectacular shield, which was once owned by the Crow chief, Big Bear. Crow Indians lived on the Plains in what is now Montana and in mountainous regions around Yellowstone. They were hunters and fierce warriors.

This shield is made of painted buffalo hide and buckskin. Its design shows clearly how the white people's introduction of firearms changed native life. The bear is shown charging into a hail of bullets. The large footprints and repeated line patterns emphasize the speed of the charging animal. The shield's design probably also had special symbolic significance to Big Bear, giving him protection in battle. The painted lines may represent the rays of the sun or thunderclouds, while the bear image is related to Big Bear's name and experiences.

PICTURE 47 *Sioux Pictograph*

A more naturalistic style developed among tribal artists influenced by the painting styles of white artists who visited their settlements. You can see the changes in this example. Instead of the simpler pictographic drawings of the past, tribal artists began to do more realistic paintings of men and horses, and to use cloth instead of animal skins as a background surface. They paid increasing attention to the proportions and real-life action of running horses, and to the colors and details of costumes.

The pictograph seen here was made on a piece of muslin cloth by a Sioux artist. This dramatic scene pictures a battle between white soldiers and Indian braves, with many casualties on both sides. Like the earlier painting, the horses and men are again all in profile, but a much greater variety of movement and action is shown. The many different positions of the horses—including falling, bucking, and charging beasts—shows this new attention to realism. The white men fighting the Indians are clearly pictured in hats and uniforms firing guns, while the Indians are shown in headdresses, some with bows and arrows, and others with guns as well.

PICTURE 50 *Iroquois False Face Mask*

Ceremonies for the curing of the sick were central to life among the Iroquois. Important tribal curing organizations, such as the False Face Society, attempted to call on the power of the supernatural through the use of healing rituals and masks. As you can see from this example, Iroquois False Face masks are among the most fantastic of any tribal carvings. Each mask portrayed a different spirit with a distorted face. Some were angry and scowling, some laughed, others looked startled or terrified. Despite their odd expressions, the masks had to be treated with respect; a person who made fun of a False Face mask could expect certain illness.

Though each one was different, the masks were all intended to recall the original False Face, a supernatural being who had been punished by the Great Spirit for being boastful. He was condemned to spend eternity healing the sick. By wearing masks like this one and practicing the proper rituals, society members were supposed to restore the supernatural powers of the original False Face.

PICTURE 51 *Onondaga False Face Mask*

Here is a spectacular example of a False Face mask, carved by the Onondaga, an Iroquois tribe. The Woodland Indians used dreams and visions as inspiration when creating these outlandish faces. Like this one, these False Face masks were often humorous. In fact, among Native Americans, only the Iroquois and the Eskimos allowed humor in their art. This example, with its bent nose, long hair made from a horse's tail, and protruding tongue, is typical of these extraordinary carvings.

Masks like this one were carved directly into the base of a living tree trunk. This red painted mask would, traditionally, have been carved in the morning; black ones were carved in the afternoon. Only when the mask was complete would the carver cut it away from the tree and hollow out the back. These masks were thought to possess living animal spirits. They were fed corn mush regularly when not in use, and were carefully placed face down when stored.

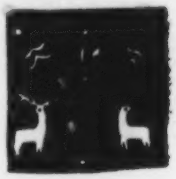
Appendix G cont.

PICTURE 52 *Iroquois Quilled Bag*

This object, from the Great Lakes region, was called a bandolier bag; it was worn slung across the chest to hold ammunition. The Iroquois tribe of the northern Woodlands made their own versions of the bandolier bag after the white people had introduced guns and smaller cartridge holders. (The Iroquois already had their own different styles of bags and pouches to carry arrows, wampum, and medicine.)

Like this one, Iroquois bags were decorated with traditional tribal designs. The artisans favored dark walnut-stained leather with brightly colored porcupine quilling. On this bag, two thunderbirds made of porcupine quills decorate the black-dyed buckskin surface. The bag's design reflects the arrival of European styles. While early Iroquois designs had geometric stripes and triangles, later examples like this one showed curving lines, plus naturalistic images such as leaves or birds or flowers.

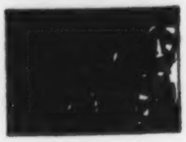
PICTURE 53 *Delaware Beadwork*



Decorations using wampum, or tiny shells, was common among the Delaware Confederacy, a group of Algonquian tribes from the eastern Woodlands. Long before the Europeans arrived, various tribes were decorating clothing, moccasins, sleeping mats, storage bags, and other items with embroidery made of these tiny beads.

This decorated cloth is another example of how European art influenced native designs. Glass beads have replaced wampum, resulting in a more colorful and elaborate design. This peaceful pattern also reflects the fact that the Delaware lived on good terms for some time with the Dutch and Swedish settlers in the area. This beadwork even resembles European folk art. Although traditional tribal designs were often symmetrical, as this example is, they were usually abstract and geometric in pattern. European influences brought the use of realistic leaf, flower, and animal shapes—like these two picturesque deer—to Indian beadwork.

PICTURE 54 *Cherokee Masks*



The Cherokees of the area around what is now North Carolina were distant relatives of the Iroquois tribe of the northern Woodlands. The Cherokee language had some basic similarities to the Iroquois, and Cherokees too used masks for various ceremonies. This collection of masks includes a few of the many varieties the Cherokees made for their rituals. Cherokee masks like these were used in ceremonies to purify the community, to cure sickness, to commemorate past glories in war and hunting, and to make fun of the dreaded white invaders. Unlike the deliberately distorted faces on the Iroquois masks, these Cherokee masks are more realistic, lifelike effigies, which even include painted face markings like those worn by warriors. Though these carved wooden masks were not as dramatic or sacred as the Iroquois False Face masks, Cherokee masks were considered powerful spiritual emblems.

PICTURE 55 *Caddo Carved Wooden Figure*

This realistic carved figure made of hardwood was once partly painted. It has human hair and a hair mustache. Between the knees of the seated figure is a deerskin bag that contains a sacred bundle. The entire figure is only about six inches high. It was produced by the Caddo, a large tribe descended from the Mound Builders cultures of the southeastern United States.

This thoughtful figure, which was made in the eighteenth century—some time after the arrival of the white people and a steadily westward push—probably represents a long-haired shaman, or holy man. His pose suggests resignation and perhaps despair, as he clutches his sacred belongings and awaits the unhappy fate of his people.

Pronunciation Guide

Acoma	ˈä-kə-ˌmō
Adena	ə-ˈdē-nə
adobe	ə-ˈdō-bē
Anasazi	ˌä-nə-ˈsä-zē
Arapaho	ə-ˈrap-ə-ˌhō
Caddo	ˈka-(ˌ)dō
Cahokia	kə-ˈhō-kē-ə
Cherokee	ˈcher-ə-(ˌ)kē
Chumash	ˈchü-ˌmash
Cree	ˈkrē
Haida	ˈhī-də
Hopi	ˈhō-(ˌ)pē
Iroquois	ˈir-ə-ˌkwoi
kachina	kə-ˈchē-nə
Kiowa	ˈkī-ə-ˌwä
Kwakiutl	ˌkwä-kē-ˈ(y)ü-tᵊl
mesa	ˈmā-sə
Mimbres	ˈmim-brās
Natchez	ˈnach-əz
Navajo	ˈnav-ə-ˌhō
Ojibwa	ō-ˈjib-ˌwā
Okvik	ˈäk-vik
Onondaga	ˌä-nən-ˈdȯ-gə
Paiute	ˈpī-(ˌy)üt
parfleche	ˈpär-ˌflesh
Pueblo	ˈpwe-(ˌ)blō
shaman	ˈshä-mən
Shoshoni	shə-ˈshō-nē
Sioux	ˈsü
tipi	ˈtē-(ˌ)pē
Tlingit	ˈtliŋ-(g)ət
Tsimshian	ˈchim-shē-ən
wampum	ˈwäm-pəm
yucca	ˈyə-kə
Zuni	ˈzü-nē

Glossary

abalone—snail of the Pacific Coast whose spiral-shaped shell, lined with mother-of-pearl, was used in Pacific Coast Indian art.

abstract design—nonrepresentational design; art that does not try to be realistic—instead, it emphasizes lines, colors, forms, and arrangement of pattern.

adobe—sun-dried brick of earth and straw, used by Pueblo Indians to make their homes.

archaeologist—person who scientifically studies historic and prehistoric people and their cultures through remains that have been unearthed.

artifact—any object made by human beings, especially of historic interest.

artisan—a person who is skilled in an artistic craft.

bandolier bag—bag worn slung across the chest to hold ammunition.

beadwork—technique of decorating tribal objects with beads—at first the beads were small shells; later, the beads were glass, acquired from white people.

buckskin—soft, pliable leather made from the skin of a buck (male animal, especially a deer or antelope).

buffalo—large wild oxen, central to Plains Indians' existence, providing food, clothing, and many other necessities of life; the American "buffalo" is actually a bison.

butte—in the western United States and Canada, an isolated hill that rises abruptly and steeply from the surrounding land; its flat summit is smaller than the flat top of a mesa.

canyon—a deep valley with steep sides, common in the U.S. Southwest.

caribou—large animal of the deer family that provides food, fur, skin for housing, and other necessities of life for Eskimos and other northern Native Americans.

ceramic ware—objects made from clay or a similar material and finished by firing (heating)

charm—a typically small object worn or carried because it is supposed to have magical powers.

effigy—an image or representation of a person or animal, especially a sculptured image.

False Face—supernatural being (or mask of the being) punished for being boastful by having to spend eternity curing the sick.

False Face Society—tribal organization that called on the power of the supernatural through rituals and "False Face" masks to cure the sick.

figurine—a small ornamental figure of pottery, metal, wood, or some other material.

firing—heat processing of pottery.

geometric design—design that emphasizes lines and angular shapes in space.

Appendix G cont.

Ghost Dance religion—religious movement among western and Plains Indians, introduced by a Paiute prophet in 1889 that emphasized a ceremonial dance.

ivory—hard white substance that is the main part of elephant and walrus tusk, used by Native Americans in the far north to make carved and sculpted artwork.

kachinas—gods of the Pueblo Indian tribes of the U.S. Southwest, especially the Hopis, derived from ancestral spirits and impersonated in religious ceremonies by masked dancers.

kayak—an Eskimo hunting watercraft with a skin cover over a light framework.

kiln—oven, furnace, or other heated enclosure used to finish pottery with heat.

longhouse—long, communal buildings of the Iroquois and some other American Indians, consisting of a wooden framework covered in bark.

loom—device used to weave fabrics.

magic—the art of producing a desired effect by using supernatural agencies and forces of nature.

medicine man—another term for shaman; a person believed to have supernatural powers for healing the sick.

mesa—a Spanish word meaning "table," applied to a flat-topped hill with steep sides, standing alone, and found in the southwestern United States and Mexico.

moccasins—soft leather heelless shoes often decorated with quillwork, beadwork, or wampum embroidery.

nomadic—living in temporary communities, moving around from place to place.

op art—style of abstract art that arranges forms and space in a way that produces optical illusions.

palette—flat surface used by a painter to hold and mix different color paints.

parfleche—small trunk or box used to carry dried meat and other articles, made from stiff rawhide.

pictograph—a record of an event made with pictorial symbols, as in prehistoric cave paintings.

plateau—a large land area with a relatively flat surface that rises sharply on at least one side from the surrounding land, common in the U.S. Southwest.

potlatch—giant ceremonial dinner of Northwest Coast Indians.

pre-Columbian—occurring before the arrival of Columbus in the Americas.

prehistoric—occurring before written or recorded history, investigated by archaeology.

pueblo—large communal building that housed an entire village.

quillwork—technique of using flattened and dyed porcupine quills to decorate tribal objects.

rawhide—untanned (raw) animal skin.

reservation—a piece of U.S. public land set aside as a place for Indians to live.

salmon—saltwater and freshwater fish important to Northwest Coast Indians.

sand painting—a symbolic, mainly Navajo artwork "painted" on a background of sand, using sand and natural dyes of different colors as "paints."

shaman—a holy man and mystical leader: part priest, part magician, part doctor.

shield—broad piece of defensive armor; Plains Indian warriors carried decorated shields made of animal hide into battle.

smallpox—contagious, infectious disease introduced to the Americas by Europeans; because Native Americans had not developed any immunity to the disease, smallpox killed vast numbers of them.

spindle—rounded rod used in hand-spinning fiber for weaving.

stylized design—design that conforms to a particular style or convention of art.

symbolism—representing things by symbols or images that have a set of meanings, or that stand for something other than what they are.

symmetrical design—well-proportioned design characterized by matching forms or arrangement of parts.

tepee—cone-shaped tent made of skins stretched around a frame of poles, used especially by Plains Indians.

thatched roofing—roof covered by a material like straw, rushes, or leaves.

thunderbird—a huge, eaglelike, mythical bird believed by western American Indians to cause thunder and lightning.

totem pole—giant carved and painted pole showing a family's history and status in the community, created by Northwest Coast Indians.

treaties—formal peace agreements, such as those made between white governments and Indian tribes.

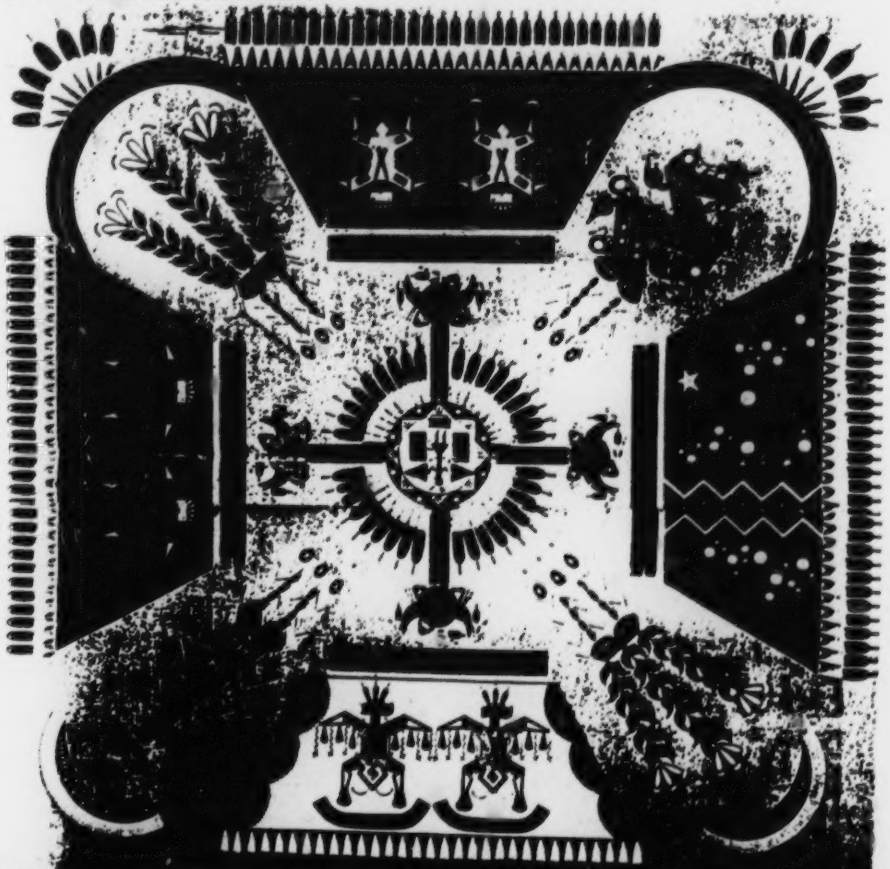
turquoise—a blue, greenish blue, or greenish gray mineral, valued as a gemstone when it is sky blue, often used in Southwest Indian jewelry.

wampum—tiny seashells used to decorate tribal objects and as currency; replaced by glass beads introduced by white settlers.

war shirt—carefully embroidered shirt worn into battle; the shirt was supposed to demonstrate the warrior's bravery and protect him from injury.

winter count—Sioux drawings on buffalo skin that were pictorial calendars and chronicles of events; the drawing was added to each year.

yucca—stiff-leaved plant, sometimes in treelike form, found in warmer areas of the Americas.



Appendix G cont.

Appendix G cont.

The First Americans

As I stand in this special place, I feel the ... y
ancestors. I hear their voices in the ... g
me to respect the earth and all its ...
—Arapaho song

The Sea.

Appendix G cont.

in The Sky,

Preview

Appendix G cont.

Appendix G cont.

Tribes of the Totem

ART SPOTLIGHT

Artists of Today: What kind of works are today's Native American artists creating?

Perfecting Tradition

Ironic Images

Visual Links

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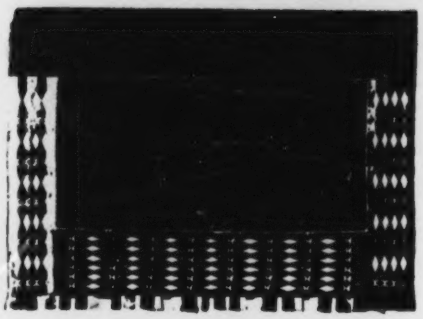
Appendix G cont.

Our Mother the Earth,
Our Father the Sky,
We, your Children, bring you
the gifts you love.

—TEWA (PUEBLO) PRAYER TO THE FORCES OF NATURE

Americans

Next year, in 1992, this country will be celebrating an important event. Does the year 1492 sound [illegible]



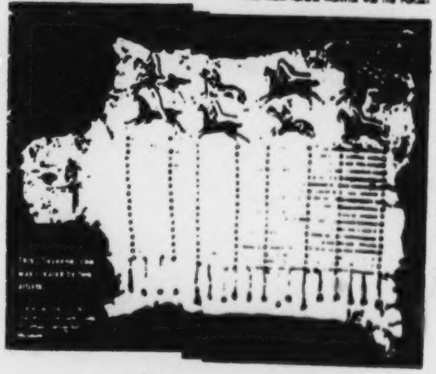
People of the Plains

"Friend, in polite life the customs are many. Friend, those are not my interest."

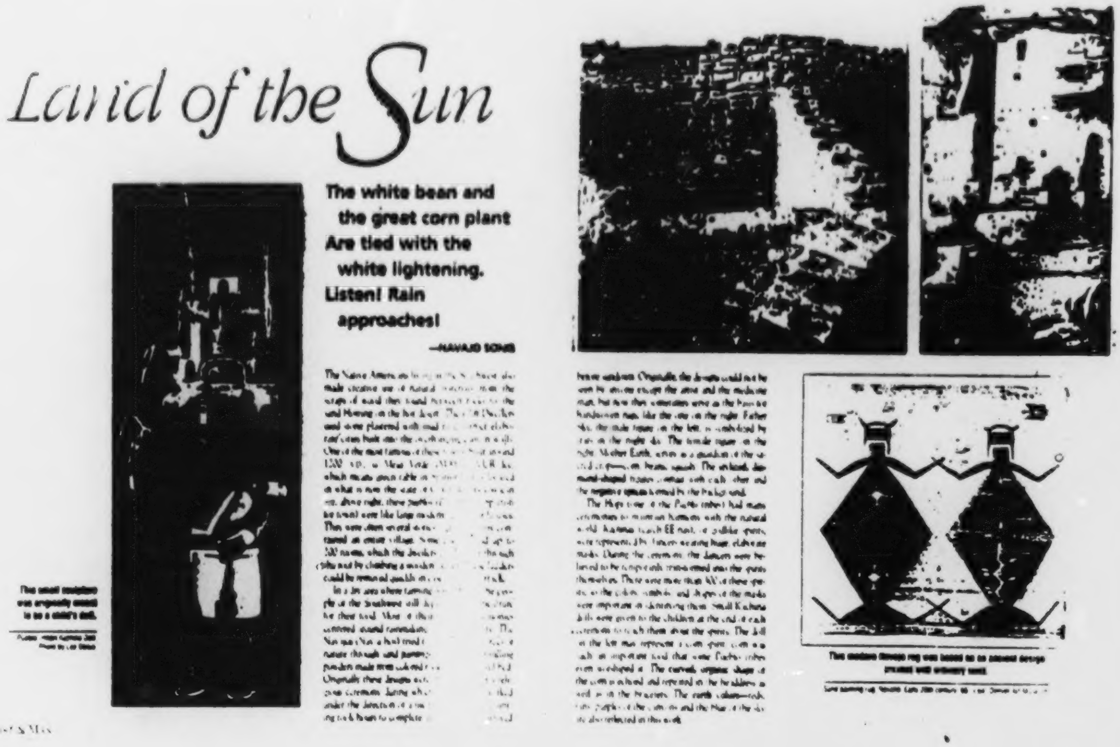
—LAKOTA (SIOUX) WAR SONG

The words of the Lakota song below reflect the art of the Native Americans who lived in the region stretching from the Mississippi River to the Rocky Mountains.

[illegible]



Appendix G cont.

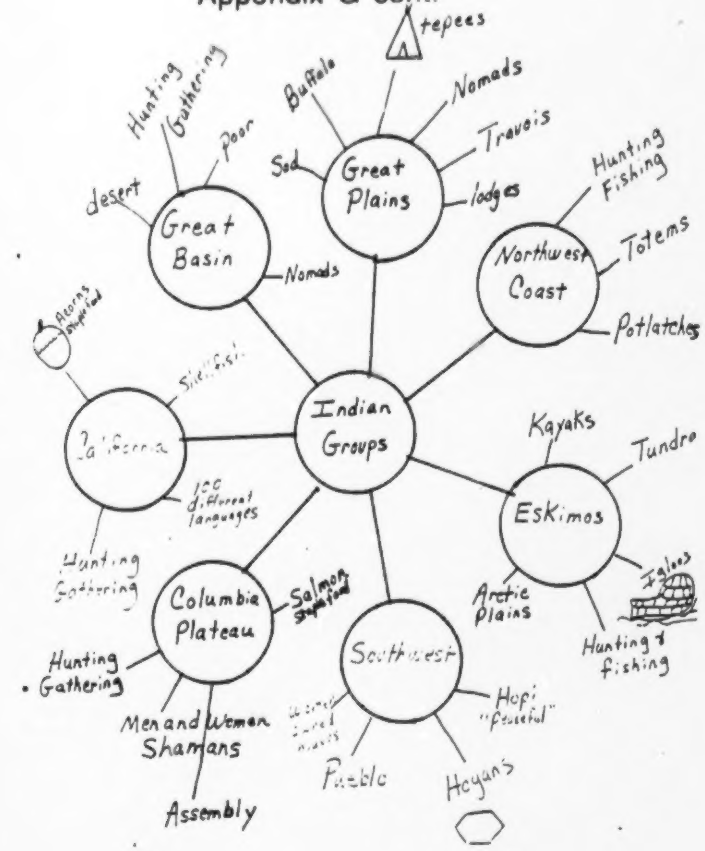


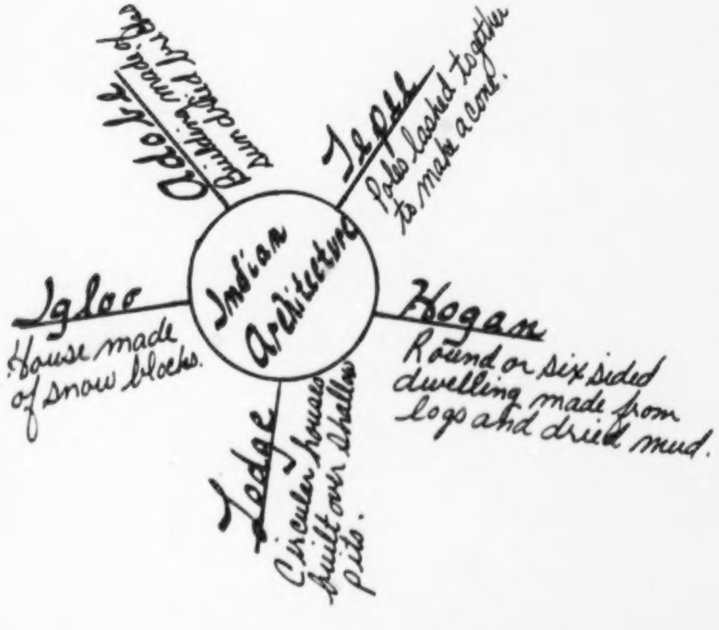
Land of the Sun

The white bean and
the great corn plant
Are tied with the
white lightening.
Listen! Rain
approaches!

—NAVAJO SONG

Appendix G cont.




Indian Architecture
Adobe
Building made of sun dried brick
Tepee
Poles lashed together to make a cone.
Igloo
House made of snow blocks.
Hogan
Round or six sided dwelling made from logs and dried mud.
Lodge
Circular houses built over shallow pits.

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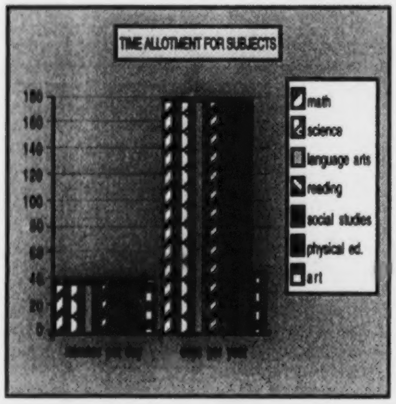
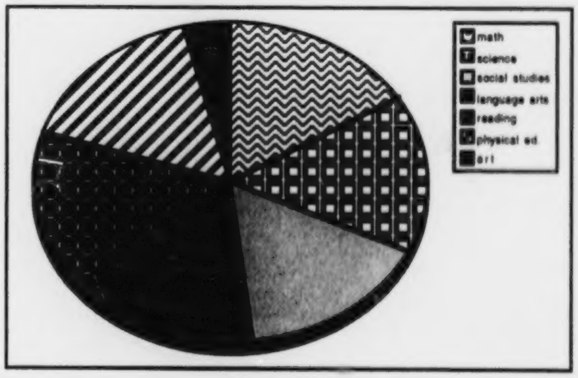
Appendix H
Synopsis of Intervention for Classroom Teachers



Frequency Chart

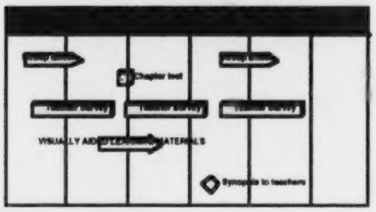
	Visualiza-tion	Color Cues	Picture Metaphor	Idea Sketching	Graphic Symbols
0%	3	5	7	5	6
25%	2	9	7	7	5
50%	7	6	6	2	4
75%	7	0	0	5	4
100%	1	0	0	1	1

	Percent of time lessons are integrated with art
0%	3
25%	11
50%	6
75%	0
100%	0

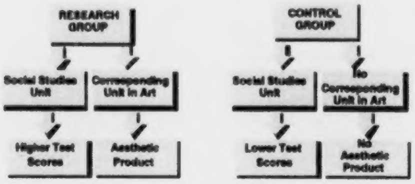


Appendix H cont.

TIMELINE OF INTERVENTION



FLOW CHART OF INTERVENTION

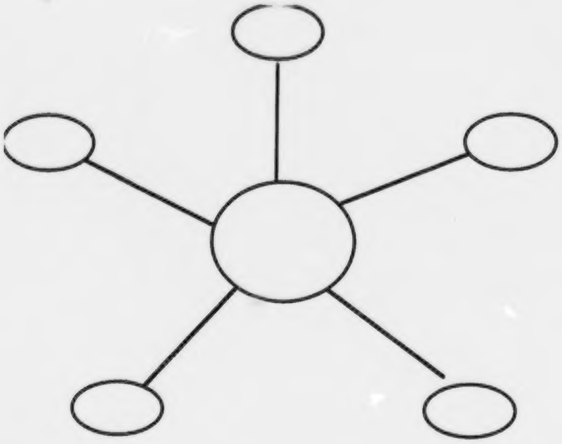


Student Scores	
Students	Scores/$
Student 1	96
2	99
3	96
4	100
5	96
6	100
7	90
8	100
9	94
10	95
11	96
12	99
13	100
14	100
15	100
16	96
17	95
18	99
19	83
20	100

Student Scores	
Students	Scores/$
Student 1	84
2	94
3	98
4	97
5	100
6	100
7	95
8	86
9	82
10	94
11	100
12	100
13	94
14	92
15	100
16	87
17	100
18	92
19	96
20	100

Appendix H cont.

MIND -MAPPING



1. Start in the center of the page with the topic idea.

2. Work outward in all directions producing a wide pattern that

3. Have well defined clusters and sub-clusters, keeping to between five and seven groupings.

4. Use key words and images.

5. Use color imagery and 3-D perspectives in your symbols.

6. Print the words rather than write them to make for more distinct and memorable images.

7. Put the words on the lines, not at the end of the lines.

8. Use one word per line, it is more concise.

9. Make the pattern noteworthy, even odd. The mind remembers things that stand out.

Appendix H cont.

10. Use arrows, colors, designs, etc. to show connections.

11. Use personal short forms, codes for fun and effectiveness.

12. Build at a fast pace. It's more spontaneous and you capture more associations as they occur to you.

13. Be creative and original.

14. Have fun.

Appendix I
Visual Cues

Name____________________

Please record or bring notes to share with the class any time you use any of the following In other classes to help you study.

	Visualization	**Color Cues**	**Picture Metaphors**	**Idea Sketching**
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				

Appendix J

Abstract

This summary describes a program for increasing awareness, development and implementation of visual elements into core subjects. The cognitive development of the targeted students as it pertains to memory and recall may be positively effected. Student tests and surveys of teachers documented and described the extent of visual spatial deficits.

Analysis of probable cause data reveals that schooling treats the -imagination as unimportant. Schools lack the integration of visual spatial intelligence into other core subjects and subject area teachers have limited visual spatial knowledge. The contribution of overlearning and over teaching of verbal linguistic tasks. Schools are overdependent and place higher value on verbal linguistic skills when visual spatial skills not only enhance those skills, they are skills of equal value.

As a result of this program employing visual spatial components and assessments, the students and faculty may have an increased awareness and understanding of the importance of including visual spatial elements in the teaching and learning of verbal linguistic tasks.

Appendix K
Visually Aided Material

Videos:

Bush, Jane B. (1993). If Rocks Could Talk: Dale Seymor Pub.

Rosenfeld, Lucy (1993). Native Art of North America: Portland, Maine: Walch.

Thomasson-Grant (1990). The Indian And His Homeland: Whittier, CA: Finley-Holiday Films

Art Prints:

Tribal Carvings, Tsimshian Totem Poles: Cave Painting from Texas, Shaman Summoning Spirits of the Hunt: Ceremonial Healing Design, Navajo Sand Paintings: (New York Public Library Picture Collection)

Battle Scene Painted On Cloth, Sioux Pictograph: Hunters And Warriors, Plains Indian Buffalo Hide Painting, circa 1830: Design With Deer Image, Zuni Pottery Water Jar: Carved Wooden Dancer, Hopi Kachina Doll, (Department Of Anthropology, Smithsonian Institute)

Painted Wooden Carving, Eskimo Shaman's Mask, (P.A. Hearst Museum Of Anthropology).

Painted Leather With Eagle Feathers, Hopi Helmet Mask, (St. Louis Art Museum).

Wooden Mask And Feathered Robe, Kwakiutl Thunderbird Costume, (Milwaukee Public Museum).

Student Projects:
Kachinna Dolls, Totem Poles,
Student Project Examples:
Teepees, Ghost, Dance Shirts,

Magazines:

Robinson, Maurice R.(1991&1995). Scolastic Art:Art & Man: Vol. 21, No. 3 &Vol.26, No. 2

Appendix L

Subject Matter Test

CHAPTER 4 PART 1 TEST

DIRECTIONS: WRITE THE LETTER OF THE ANSWER THAT BEST COMPLETES EACH SENTENCE IN THE BLANK.

a.natural environment
b. shamans
d. slash-and-burn
e. passenger pigeon
f. extinct
g. wampum

_____ 1. A wall made of sharpened tree trunks.

_____ 2. The most common food bird of the Woodland Indians.

_____ 3. Consists of the land, water, plants, and animals around us.

_____ 4. Made form porcupine quills and shells.

_____ 5. No longer existing.

_____ 6. Priests and healers.

_____ 7. Method of clearing fields for farming.

DIRECTIONS: CIRCLE THE ANSWER THAT BEST COMPLETES EACH SENTENCE.

8. The Woodland Indians were

a. gatherers, hunters, and doctors.
b. doctors, farmers, and gatherers.
c. farmers, gatherers, and hunters.

9. A bark covered shelter was a

a. wigwam.
b. hogan.
c. longhouses.

Appendix L cont.

10. Dwellings made of poles covered with elm bark were

a. pueblos.
b. longhouses.
c. wigwams.

11. This was used by the Iroquois to help them remember important events and as a form of money

a. tobacco.
b. wampum.
c. wigwams.

12. The shaman who persuaded five of the Iroquois tribes to stop fighting each other and unite in a league

a. Mulberry.
b. Blackfoot.
c. Hiawatha.

13. A union of people joined together for a common purpose is a

a. league.
b. nation.
c. descendant.

14. The most powerful of the Indian groups in the Northeast to join the Six Nations were the

a. Iroquois.
b. Tuscarora.
c. Mohawks.

15. The Five Civilized Tribes consisted of the

a. Kiowa, Comanche, Cheyenne, Crow, and Creek.
b. Creek, Choctaws, Chickasaws, Cherokees, and Seminoles.
c. Sioux, Apache, Navajo. Natches, and Shoshone.

Appendix L cont.

DIRECTIONS: UNDERLINE THE WORD(S) THAT BEST COMPLETES EACH SENTENCE.

16. The Creek men went on hunting parties that lasted (5 to 6 weeks or 5 to 6 months).

17. The Indians peoples of the (Southeast or Northwest Coast) lived in farming villages.

18. In the Iroquois culture the (children or women) were the most important people.

19. In the Northeast the Indians made maple sugar from the sap of the (oak tree or the maple tree).

DIRECTIONS: WRITE THE WORD TRUE OR FALSE IN THE BLANK.

__________20. In order for 8 to 10 families to live together in longhouses the people had to have cooperation and patience.

__________21. The two major language groups of the Northeast Indians were the Iroquian and the Cheyenne.

__________22. American Indians all had a form of religion.

__________23. The Indians believed in living in harmony with the spirits.

__________24. The Indians were willing to learn the Canadian way of life.

DIRECTIONS: WRITE SENTENCES TO EXPLAIN WHY MANY INDIAN CULTURES DID NOT SURVIVE THE COMING OF THE EUROPEANS.

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BONUS

ANSWER ONE, TWO, OR ALL THREE OF THE FOLLOWING.

1. WHAT COULD HAPPEN WHEN ONE CULTURE MEETS ANOTHER OR A NEW
CULTURE?____

2. WHAT WOULD BE SOME EXAMPLES OF THE IMPORTANCE OF WOMEN AMONG THE
IROQUOIS?____

3. TELL THREE CHARACTERISTICS THAT THE WOODLAND INDIANS HAD IN.COMMON

Appendix M
Student Permission Letter

CATHY L. EDWARDS CARR

SAINT XAVIER UNIVERSITY

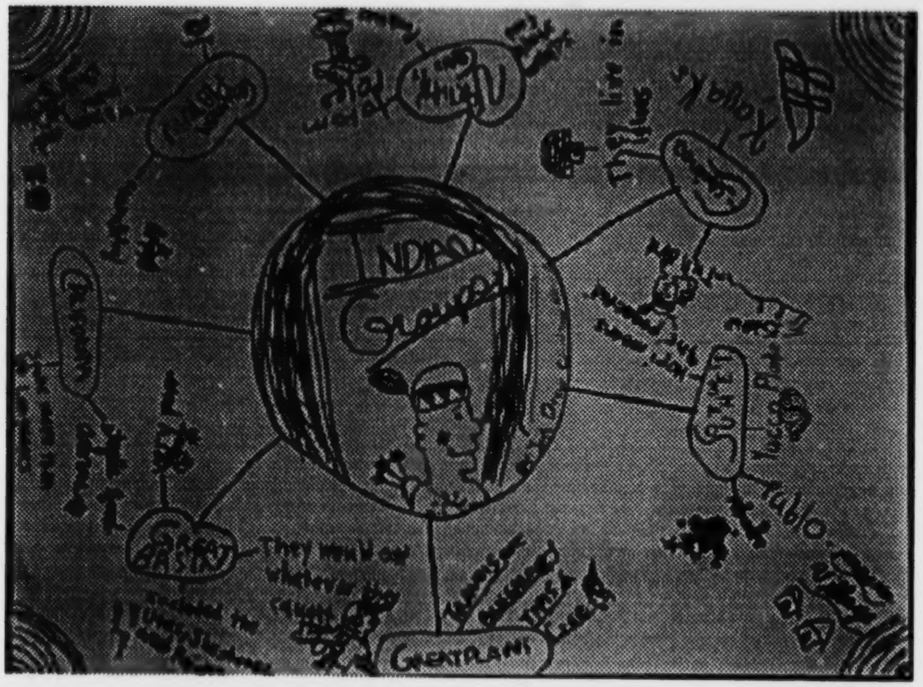
As part of my graduate work at SXU, I am implementing a project to improve students recall and retention of material in Social Studies by integrating an art project with a unit they are currently studying. I would like your permission to use their test results in my report on the findings. Students responses will be held in confidence, their names will not be published. Please indicate your permission by signing and returning this letter.

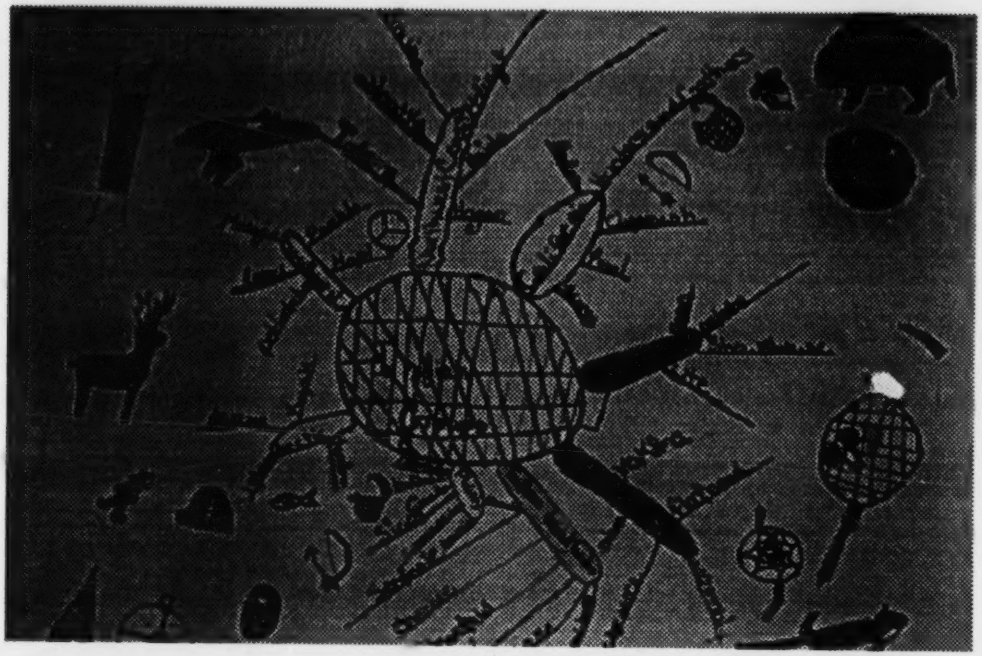
Thank you for your

cooperation.

Cathy Carr

Appendix N
Student Examples
Mind Maps





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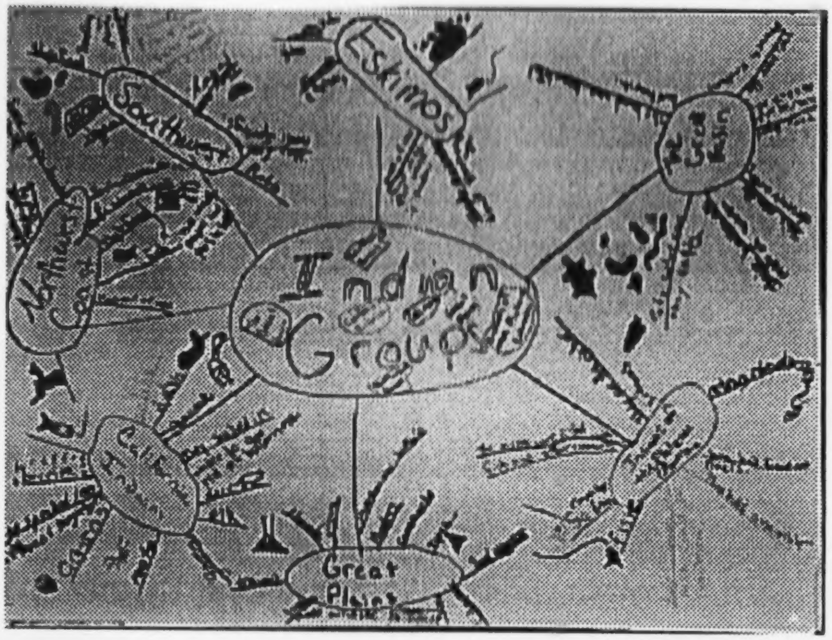
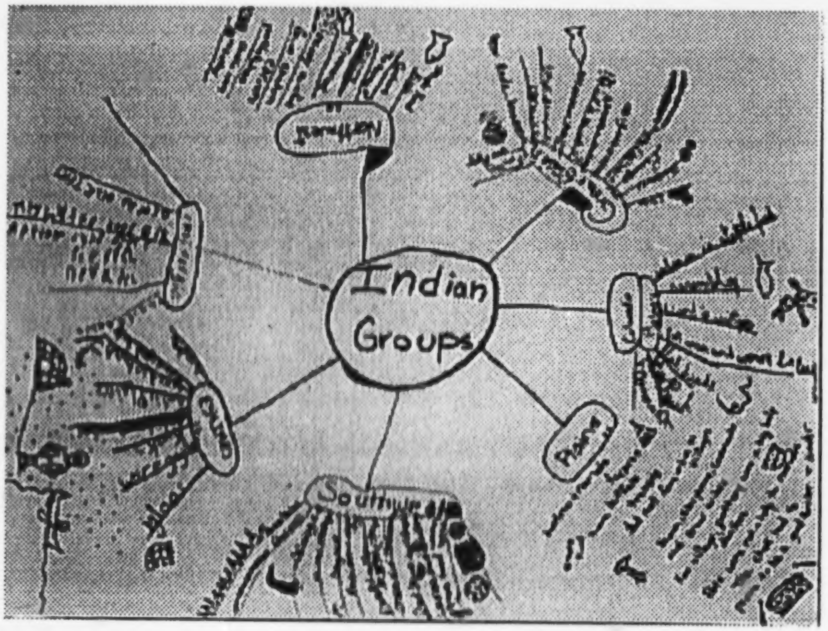
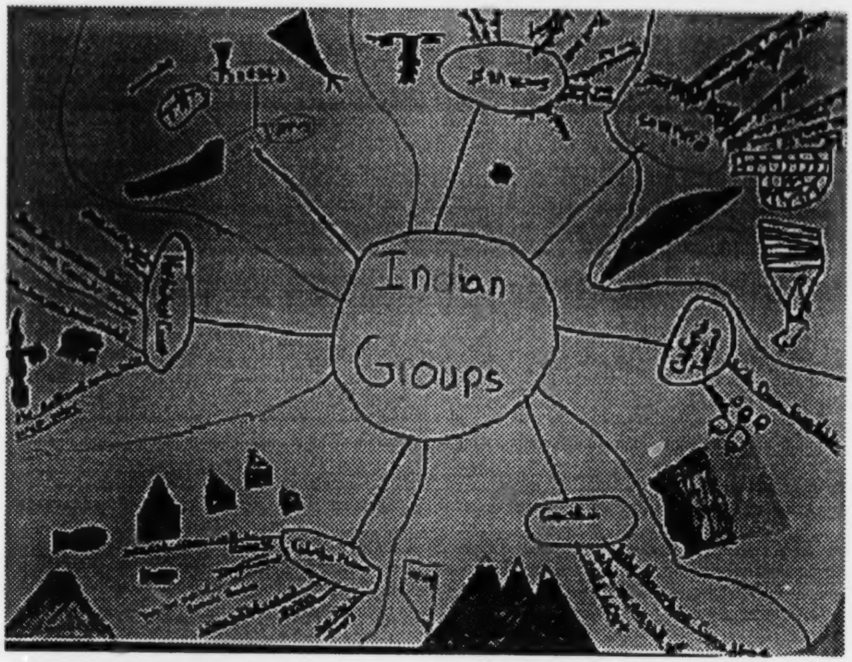
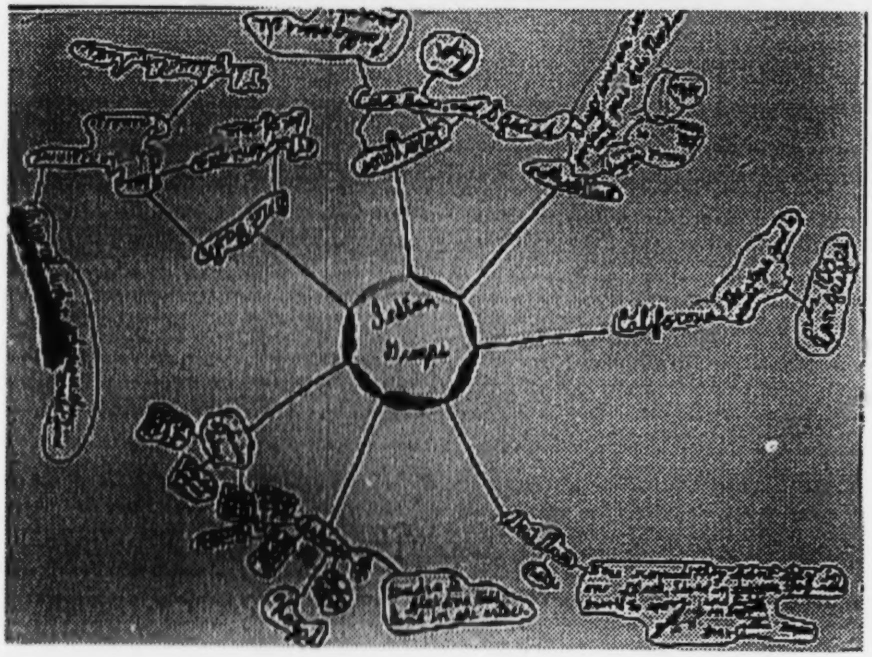
Appendix N cont.





Appendix N cont.





Appendix O

Teacher Permission Letter

CATHY L. EDWARDS CARR

ST. XAVIER UNIVERSITY

As part of my graduate work at SXU, I am implementing a project to improve students visual spatial skills. As part of my work I will be asking teachers to fill out the attached survey. Teacher responses will be held in confidence. Participation in the survey is voluntary. Please indicate your permission by signing and returning this letter along with the completed survey.

Thank you for your cooperation.

Cathy Carr